



CLIENT STRATEGIC ACTIONS, GOING-CONCERN AUDIT OPINIONS AND AUDIT REPORTING ERRORS

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Liesbeth BRUYNSEELS

COMMITTEE

Advisors: Prof. Dr. Marleen Willekens
Prof. Dr. W. Robert Knechel

Prof. Dr. Ann Gaeremynck
Prof. Dr. Stuart Turley
Prof. Dr. Luk Warlop

Daar de proefschriften in de reeks van de Faculteit Economische en Toegepaste Economische Wetenschappen het persoonlijk werk zijn van hun auteurs, zijn alleen deze laatsten daarvoor verantwoordelijk.

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CHAPTER 1: INTRODUCTION

1.1 INTRODUCTION TO THE PROBLEM

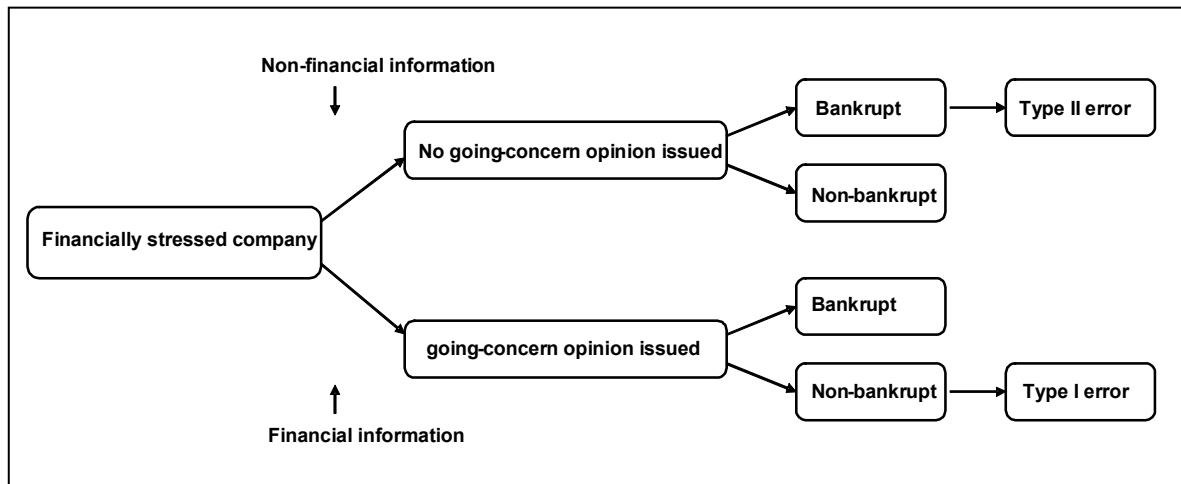
Since the issuance of SAS No. 59 in 1988, the auditor's decision to issue a going-concern report received much attention from legislators, the public, and researchers. SAS No. 59 increased the auditor's responsibility for going-concern evaluation by requiring the auditor to evaluate on every audit whether substantial doubt exists about the client entity's ability to continue as a going-concern. In particular, the auditor should evaluate conditions or events discovered during the audit engagement that raise questions about the appropriateness of the going-concern concept. When these conditions and events lead to substantial doubt about the continued existence of the entity as a going-concern, the auditor should consider management's plans to mitigate the effects of these adverse conditions and events. If the auditor believes that management's plans may overcome this substantial doubt, a going-concern report is not required. However, if the auditor decides that substantial doubt remains, the audit report should be modified by adding an explanatory paragraph following the opinion paragraph.

Academic interest related to this topic has largely focused on unravelling the auditor's going-concern decision-making process, while the issue of going-concern reporting accuracy has been the centre of debate for legislators and investors. With respect to the frequency of audit reporting errors, prior research has shown that the proportion of bankrupt companies that received a going-concern modified audit opinion in the year immediately preceding bankruptcy is generally lower than 50 percent (Chen and Church, 1992; Raghunandan and Rama, 1995; Geiger and Raghunandan, 2002). In addition, a study by Nogler (1995) following a total of 157 firms to the resolution of their going-concern opinion found that only 33 percent of the sample firms resolved their going-concern opinions by entering into bankruptcy proceedings, whereas 35 percent of the companies received an unqualified opinion in the subsequent period and 32 percent resolved their going-concern opinion through dissolution, liquidation or merger.

Figure 1.1 provides an overview of the going-concern decision-making framework. This framework emphasizes the importance of both financial and non-financial information in the auditor's going-concern decision and situates both Type I and Type II

reporting errors in the going-concern decision framework. More specifically, Type I reporting errors are defined as the issuance of a going-concern modified report for a client that subsequently remains viable, whereas Type II reporting errors are defined as the issuance of a clean report for a client that subsequently goes bankrupt.

FIGURE 1.1: THE GOING-CONCERN DECISION-MAKING FRAMEWORK



In this thesis, we contribute both to the going-concern literature and the reporting accuracy debate by investigating the impact of mitigating management initiatives on the auditor's going-concern decision and assessing the impact of several auditor characteristics on the likelihood of type II errors.

1.2 MAJOR RESEARCH OBJECTIVES AND CONTRIBUTIONS

The high frequency of audit reporting errors is indicative of the fact that the auditor's going-concern decision is highly complicated and involves a high level of judgment. This complexity has prompted the development of numerous models to predict the issuance of a going-concern opinion on the basis of financial predictor variables (see, for example; Levitan and Knoblett 1985; Dopuch, Holthausen and Leftwich, 1987; Menon and Schwartz 1987; Bell and Tabor 1991). Although there have been studies focusing on the value of non-financial information in going-concern decision-making (Mutchler, 1984; Mutchler, Hopwood and McKeown, 1997; Behn, Kaplan and Krumwiede, 2001; Geiger and Rama, 2003), research on the role of mitigating management initiatives remains scant. In this dissertation, we add to the going-concern prediction literature by testing the

association between the auditor's going-concern judgment and a comprehensive set of management turnaround actions. To this end, we use a unique and manually collected dataset containing detailed information on turnaround initiatives implemented by US listed companies. In addition, we investigate experimentally *how* the auditor's knowledge of management turnaround initiatives impacts the processing of subsequent financial going-concern evidence. As such, we gain not only an insight into the range and type of mitigating management initiatives considered by auditors, but also obtain an understanding of the role of these initiatives in the decision-making process.

Furthermore, we investigate which auditor traits are beneficial to auditor reporting accuracy. Prior research that attempted to explain the causes of audit reporting errors mainly focused on factors such as auditor size, auditor tenure, the probability of bankruptcy, payment and covenant defaults, bankruptcy lag, industry sector etc. (see, for example, McKeown, Mutchler and Hopwood, 1991; Mutchler et al., 1997; Lennox, 1999a and 1999b). This dissertation contributes to this line of research by assessing the effect of enhanced industry knowledge or an increased focus on business risk on audit reporting accuracy. In particular, we investigate whether industry expertise or the adoption of the business risk methodology decreases the likelihood of Type II reporting errors. As such, we move beyond the Big N/non-Big N dichotomy as an indication of audit quality and investigate which auditor traits contribute to audit reporting accuracy.

1.3 THESIS STRUCTURE

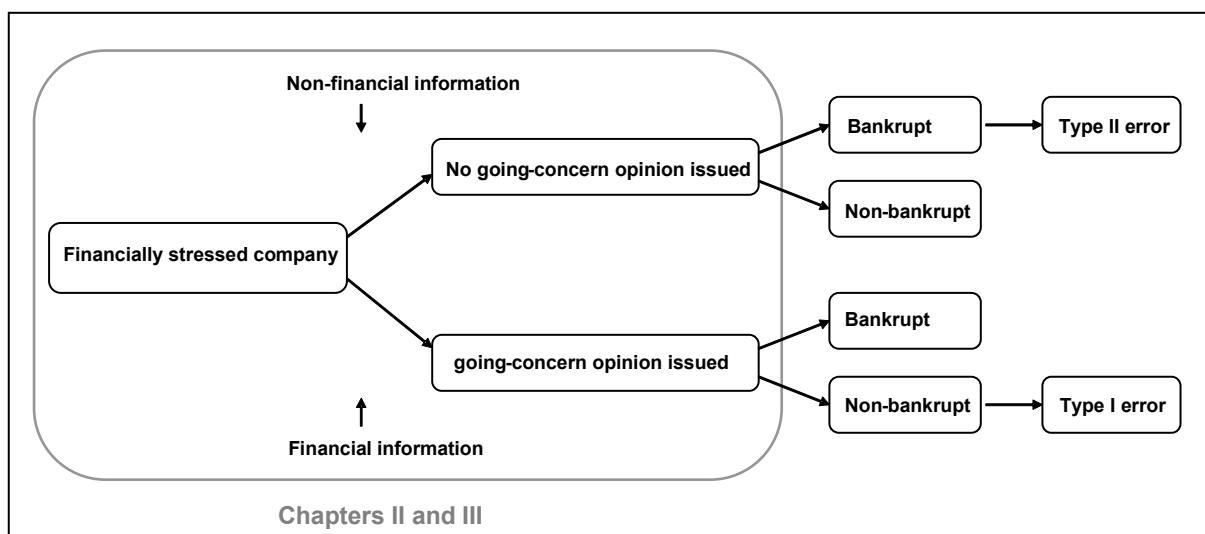
The remainder of this dissertation consists of three different chapters. They are written so that they can be read independently of each other. In this section, we give a brief overview of the chapters and highlight the connections between them.

In the second chapter of this dissertation we examine the association between various types of management turnaround initiatives and the likelihood that a distressed company receives a going-concern audit opinion. In particular, we consider a broad variety of strategic and operating management initiatives to improve financial performance which have not been tested in previous studies. In order to predict the impact

of these management initiatives on going-concern judgment, we rely on the strategic management literature which offers an extensive body of research focusing on how firms successfully reverse severe company performance declines.

In the third chapter, we back up the results of the previous chapter by providing experimental evidence of the relation between strategic management plans and the going-concern decision. In addition to assessing *whether* the auditor considers this type of information, the experimental methodology allows us to investigate *how* management initiatives affect the going-concern decision-making process. We propose that, in addition to directly affecting going-concern judgment, strategic information also affects the going-concern decision indirectly through its effect on memory for financial going-concern evidence. In addition, we investigate the differential impact of strategic information on experienced and novice auditors' going-concern decision. Figure 1.2 situates chapter 2 and 3 in the going-concern decision-making framework.

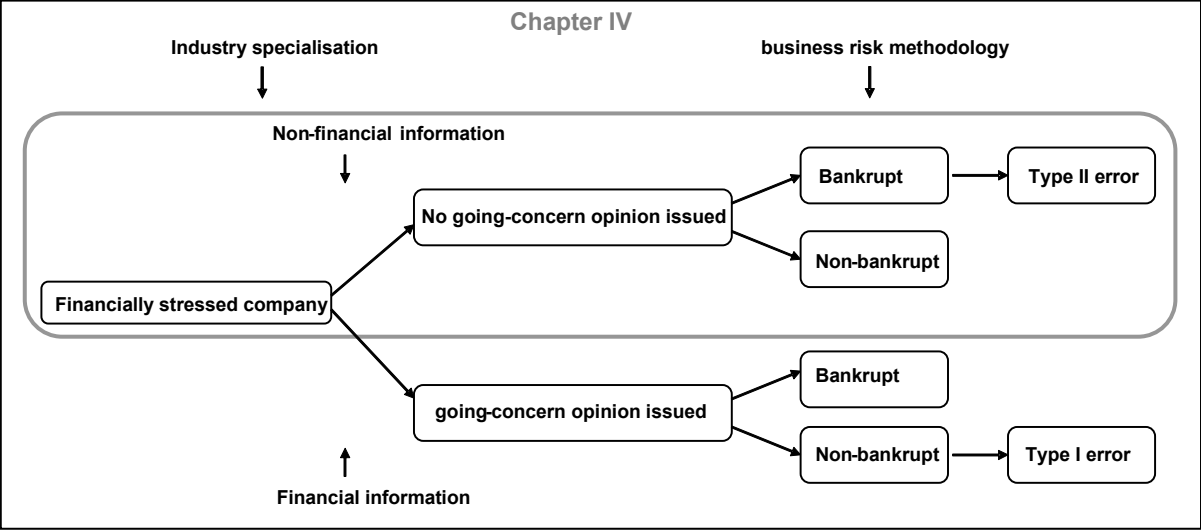
FIGURE 1.2: THE POSITION OF CHAPTERS 2 AND 3 IN THE GOING-CONCERN DECISION-MAKING FRAMEWORK



In the fourth chapter, we focus on the relationship between industry specialisation, the business risk methodology and going-concern reporting accuracy. In addition, we investigate the comparative advantage of auditors possessing specialist knowledge or adopting a business risk focus in evaluating client turnaround initiatives. More specifically, we assess whether the likelihood of audit reporting errors decreases when a distressed client that implements strategic or operating initiatives is audited by an industry

specialist or an auditor adopting the business risk methodology. The position of chapter 4 in the going-concern decision framework is depicted in figure 1.3.

FIGURE 1.3: THE POSITION OF CHAPTER 4 IN THE GOING-CONCERN DECISION-MAKING FRAMEWORK



Finally, chapter 5 concludes this dissertation by providing an overview of the main findings and discussing limitations and avenues for future research. In addition, this chapter outlines the policy implications of the conducted research for audit clients, practitioners and regulators.

CHAPTER 2

STRATEGIC ACTIONS AND GOING-CONCERN AUDIT OPINIONS

ABSTRACT

In this chapter we examine the association between various types of strategic management actions implemented by distressed companies and the likelihood that they receive a going-concern audit opinion¹. Prior going-concern studies that focus on the impact of non-financial information investigate particular *operating* turnaround initiatives, such as cost reduction strategies (see, Behn, Kaplan and Krumwiede, 2001; and Geiger and Rama, 2003). We contribute to this literature by studying the impact of a broader set of operating turnaround initiatives (i.e. cost reduction, asset disposal, increased marketing and product upgrading), as well as a set of strategic growth initiatives (i.e. product innovation, expansion and cooperative strategies). As the assessment of an auditee's likelihood of survival within the next twelve months is critical in the going-concern decision-making context, we further distinguish between strategic growth initiatives that are likely to generate positive cash flows in the short run (i.e. cooperative agreements) versus long run (i.e. innovation and expansion strategies).

Based on manually collected data on a sample of 112 distressed manufacturing US firms, we find that operating turnaround initiatives, as well as strategic initiatives that are likely to generate positive cash flows in the long run are positively associated with the likelihood that a going-concern opinion is received. This evidence suggests that these two categories of management initiatives are perceived as going-concern risk factors by auditors. On the contrary, strategic turnaround initiatives that are likely to generate positive cash flows in the short run are negatively associated with the likelihood that a going-concern opinion is received, which is supportive of this category of initiatives being perceived as mitigating factors.

¹ The ideas presented in this chapter are further developed in a working paper by L. Bruynseels and M. Willekens (2006), entitled: "Strategic Actions and Going-Concern Audit Opinions".

2.1 INTRODUCTION

In this study we investigate whether strategic actions taken by management of financially distressed firms affect the auditor's going-concern opinion decision. At least two features motivate why a relationship between client strategic actions and going-concern audit decisions is likely to exist. First, SAS No. 59 explicitly prescribes the consideration of contrary non-financial (internal and external) matters and mitigating management plans in making going-concern decisions. Therefore a broad set of events, actions and management plans – including strategic – are potential determinants of going-concern opinion decisions. Second, changes in auditing methodology and technology towards business risk auditing approaches in the second half of the nineties (such as Strategic-Systems Auditing as introduced in Bell, Marrs, Solomon and Thomas, 1997, and further developed in Bell, Peecher and Solomon, 2005) motivate the likelihood that strategic management actions are an integrated part of audit evidence collection. Note that client strategic analysis² is one of the most innovative aspects of business risk auditing methodologies. As the evidence collected from strategic analyses is likely to have a substantial impact on subsequently planned and executed audit procedures as well as the assessment of a client's future financial viability, it is also very likely to affect the auditor's going-concern opinion decision.

It is well documented in the literature that auditors make going-concern decisions based on reported financial results and compliance with financial obligations (see, for example, Mutchler, 1985; Levitan and Knoblett, 1985; Menon and Schwartz, 1987; Dopuch, Holthausen and Leftwich, 1987; Bell and Tabor, 1991; Chen and Church, 1992; Gaeremynck and Willekens, 2003). The importance of information other than that contained in the financial statements is also emphasized in SAS No. 59. Besides the presence of negative financial trends and other indications of possible financial difficulties – like for example default on loan agreements, SAS No. 59 defines certain (non-financial) internal and external matters as conditions and events that may indicate that there could be substantial doubt about the entity's ability to continue as a going-concern. Subsequently, SAS No. 59 also requires auditors to consider management plans to *mitigate* the effects of these adverse conditions or events when assessing their client's ability to continue as a

² or stated alternatively, acquiring evidence of and from the entity business states (EBS) as advocated in Bell et al. (2005).

going-concern. The impact on the audit opinion of contrary and mitigating factors in publicly available disclosures such as the financial press, 10-K's or management discussions and analyses has also been documented in the going-concern literature (see Mutchler, Hopwood and McKeown, 1997). Although the importance of strategic management plans is recognized in today's auditing practice, research on the impact of forward-looking management plans on going-concern decisions is scant. Behn, Kaplan and Krumwiede (2001) recognized this caveat and provide evidence of the relationship between the likelihood of going-concern opinions and a company's ability to obtain new financing and to reduce costs. After controlling for financial condition, size, default status, and the propensity to voluntarily disclose information, their results indicate that going-concern opinion decisions are strongly linked to publicly available mitigating information regarding certain management plans. In particular, plans to issue equity and to borrow additional funds exert the strongest association with the issuance of an unqualified opinion. Recently, Geiger and Rama (2003) report that companies are more likely to receive a modified report if they entered into a cost reduction plan or sold off significant assets. However, contrary to the findings of Behn et al. (2001), plans for the issuance of new debt or equity are not significantly associated with the auditor's opinion type.

The increased relevance of strategic parameters in the audit decision-making context in general is attributable to changes in the scope and methodology of auditing that have taken place in (a number of) large accounting firms in the second half of the nineties (see, for example, Bell et al. 1997; Lemon, Tatum and Turley 2000; Knechel, 2001; Bell et al. 2005; Curtis and Turley 2005). Whereas traditional auditing approaches adopt a bottom-up focus thereby directing attention to the nature of account balances, classes of transactions, and properties of the client's accounting system, business risk auditing develops a top-down holistic perspective of the client's business and industry. This entails a thorough analysis of the client's business and strategic position. Note that a general evolution towards business risk auditing elements is reflected in some of the new International Audit Risk Standards. In particular, International Standard on Auditing (ISA) 315 requires the auditor to develop an understanding of client objectives and strategies, as well as the related business risks that may result in a material misstatement of the financial statements. These business risks are not only to be evaluated in light of their immediate consequences for the risk of material misstatements, but also with regard to their longer-term consequences.

We contribute to the going-concern literature by testing the association between the likelihood of going-concern opinions and a comprehensive set of strategic actions for a sample of distressed US manufacturing companies. Like other going-concern studies, we rely on information disclosed by management in the management discussion and analysis (MD&A), and remainder of the 10-K (Behn et al., 2001; Geiger and Rama, 2003). Consistent with the strategy literature³ (see for example, Barker and Duhaime, 1997; Robbins and Pearce II, 1992; Sudarsanam and Lai, 2001; Bruton, Ahlstrom and Wan, 2003) we distinguish between management actions and plans aimed at a short-term improvement in financial performance (or, operating turnaround initiatives) and strategic growth initiatives (or, strategic turnaround initiatives). As going-concern decision-making involves the assessment of the likelihood of survival of an auditee within the next twelve months, we further sub-divide strategic growth initiatives in those that are likely to generate positive cash flows in the short run (i.e. cooperative agreements) versus those that are likely to only generate cash inflows in the long run (i.e. innovation and expansion strategies).

Consistent with prior going-concern studies focusing on short-term improvement (or, operating) initiatives (see, Behn et al. 2001; Geiger and Rama, 2003), we find that cost reduction strategies are positively associated with the likelihood of receiving a going-concern opinion. In addition, we also find that marketing strategies are positively associated with the likelihood of receiving a going-concern opinion. Our test of the strategic growth initiatives reveals that the engagement in cooperative agreements is negatively associated with the likelihood of receiving a going-concern opinion, whereas product expansion strategies increase the likelihood of receiving a going-concern opinion. Our results are consistent with cooperative agreements providing a positive signal about the going-concern status of the firm and therefore could be interpreted as a mitigating factor, whereas the presence of cost reduction, marketing and product expansion strategies are perceived as going-concern risk factors that increase the likelihood to receive a going-concern opinion.

Finally, we also test the impact of three construct variables capturing the number of activities within each of the three categories of management actions tested in this chapter: short-term operating initiatives, strategic growth initiatives that are likely to

³ The strategy literature contains an extensive body of research that focuses on how firms reverse firm-threatening performance declines. See also hypothesis development section.

generate a short-term cash flow impact, and strategic growth initiatives that are likely to only generate a long-term cash flow impact. We find that an increase in the number of operating turnaround initiatives taken by a distressed firm's management is associated with a higher likelihood of receiving a going-concern opinion. A similar result is obtained for strategic initiatives that are only capable of generating a long-term financial impact. On the contrary, the presence of strategic turnaround initiatives that are likely to generate a financial impact in the short run is negatively associated with the likelihood that a going-concern opinion is received. Thus, our evidence suggests that auditors perceive the engagement in operating initiatives and strategic growth initiatives that only yield a financial impact in the long term as inadequate or insufficient to resolve a company's going-concern problems, whereas the engagement in strategic growth initiatives that generate a short-term financial impact are perceived as a mitigating factor.

The remainder of this chapter is organized as follows. In section 2.2 we provide an overview of the existing going-concern literature and in section 2.3 we develop our hypotheses. Section 2.4 then is devoted to the development of the going-concern opinion model that is tested in this chapter. Next, in Section 2.5 we provide an overview of our sample selection procedure and data collection approach. In Section 2.6 we discuss the results of our analyses. We conclude in Section 2.7.

2.2 LITERATURE REVIEW

With respect to the going-concern opinion, different classes of variables have been proposed and tested in order to assess their importance in the decision whether a company is likely to stay in business the next year. Most of the studies have investigated the influence of the quantifiable and nonquantifiable factors identified by SAS No. 34 and SAS No. 59 on the issuance of a qualified opinion (e.g. Mutchler, 1985; Dopuch, Holthausen and Leftwich, 1987; Chen and Church, 1992; Goodman and Braunstein, 1995; Behn et al, 2001 and Gaeremynck and Willekens, 2003). Consistent with SAS No. 34, the results of a study conducted by Mutchler (1984) indicated that auditors view financial ratios, cash flow projections, mitigating factors and management performance/plans as being the most important factors in the going-concern decision. Mutchler (1985) proceeded to test these propositions by examining the relationship between the going-

concern opinion and publicly available information for financially distressed firms. She found that the model containing the prior-year opinion variable and the six highest ranked ratios from the previous study (Mutchler, 1984) had an overall classification accuracy of approximately 83 percent. Levitan and Knoblett (1985) tested categories of financial statement variables suggested by SAS No. 34 and other variables frequently mentioned in bankruptcy models. Their model reached a classification accuracy approaching 90 percent. Menon and Schwartz (1987) went one step further and included in their model an extended set of operating variables, comprising not only the ability to generate cash flow from operations but also several profitability measures. The results indicated that recurring operating losses were closely associated with the auditor's decision to qualify his opinion.

Whereas the previous studies (except for Levitan and Knoblett, 1985) examined the going-concern decision for financially distressed companies, Dopuch et al. (1978) tested their model on a sample consisting of healthy and distressed companies. Being the first to use market variables in their model, they found that there is information in market prices that is significantly correlated with the auditor's decision. Bell and Tabor (1991) extended this research by including not only change, but also industry-standardized measures of previously tested variables. Their results indicated that both rate of change and industry-standardized financial ratio measures provide incremental explanatory power in the models. Inspired by SAS No. 59, in which default on debt obligations is identified as a key factor in the going-concern decision, Chen and Church (1992) subsequently tested the impact of default status on continuity judgment. Using a sample of industrial firms, they found that default status adds significant explicative power to the model, even rendering some of the financial variables insignificant.

More recent research considered the impact of contrary and mitigating factors in publicly available disclosures such as the financial press, 10-K or management discussion and analysis. Mutchler et al. (1997) included contrary information and mitigating factors taken from the financial press, instead of the Management Discussion and Analysis (Mutchler 1984). Not surprisingly, they found that negative events occurring before the issuance of the audit report have a significant impact on the going-concern decision. Moreover, tests even indicated that debt default events reported in the Wall Street Journal have a bigger impact than the mere occurrence of the event. As mentioned earlier, Behn et al. (2001) added to this research by examining whether auditors' going-concern reports are associated with management plans, as directed in SAS No. 59. After controlling for

financial condition, size, default status, and the propensity to voluntarily disclose information, the results indicated that going-concern reporting decisions are strongly linked to publicly available mitigating information relating to plans to issue equity and to borrow additional funds. In addition, a study by Geiger and Rama (2003) regarding the association between audit fees, nonaudit fees and audit report modification decisions indicated that distressed companies are more likely to receive a modified report if they entered into cost reduction plans or entered into the sale of significant assets.

More recently, Gaeremynck and Willekens (2003) provided evidence on the endogenous relationship between audit-report type and business termination for firms in a non-litigious environment. Using a sample of Belgian private firms, their results indicated that even without a litigation deterrent, a non-clean opinion is issued when firms face financial difficulties. Moreover, controlling for the endogenous relation between audit-report type and business termination, their findings provide support for the self-fulfilling prophecy stating that financial difficulties become even more severe after receiving a non-clean audit opinion. In addition, they also find evidence of significant reporting differences between Big 6 and non-Big 6 auditors in the Belgian audit market.

2.3 HYPOTHESES DEVELOPMENT

SAS No. 59 clearly states that besides financial indicators of possible financial difficulties— such as negative (financial) trends – non-financial internal and external matters are also potentially relevant information to assess the going-concern status of a client firm. Examples of internal matters that are included in SAS No. 59 are work stoppages or substantial dependence on the success of a particular project. External matters listed in SAS No. 59 include, for example, legal proceedings or the loss of a key franchise, license or patent. Furthermore, when the identified conditions and events in the aggregate lead to substantial doubt about the continued existence of the entity as a going-concern, the auditor should identify and evaluate management’s plans to mitigate the effects of these adverse conditions or events. If the auditor believes that there exist management plans that overcome this substantial doubt, a going-concern audit report is not required. Examples of such potentially mitigating management plans are included in

SAS No. 59, and relate to the sale of assets, the borrowing or restructuring of debt, the reduction of expenditures and the increase of ownership equity.

A few prior studies provide evidence that auditors are indeed committed to reviewing management plans that are dealing with adverse conditions or events when assessing a client's ability to continue as a going-concern (Behn et al., 2001; Geiger and Rama, 2003). However, these studies are confined to assessing the impact of examples of management plans and actions that are explicitly mentioned in SAS No. 59. In this chapter, we elaborate on this theme and investigate the impact of a broader set of potentially contrary or mitigating actions and strategies on the auditor's going-concern decision. We motivate this broader strategic focus by the emergence of business risk auditing in the 1990s. With the emergence of this audit approach, traditional auditing methodologies have been complemented with new audit processes based on a top-down, holistic perspective of the client's business and industry (see, for example, Bell et al., 1997; Lemon, Tatum and Turley, 2000; Knechel, 2001). The most innovative aspect of business risk auditing is the assessment of client strategic viability, which can have a substantial impact on the subsequent audit procedures and the assessment of future financial viability.

To predict the impact of a comprehensive set of strategic actions on the going-concern opinion, we categorize management actions into *strategic* and *operating* turnaround approaches. This is a widely used framework introduced by Hofer (1980). Note that an operating approach focuses on *internal*, operating problems of firms through – for example – decreasing costs, increasing efficiency, disposing assets, or improving sales (Hofer, 1980). A strategic turnaround approach is aimed at long-term profitability by solving *external*, strategic problems through for example a change in the strategic direction of the firm, its positioning, alliances and product lines (Bruton et al., 2003). Strategic repositioning may be done through business divestments, acquisitions, alliances, new product development, new markets, and increased market penetration. Firms experiencing financial distress may adopt a variety of strategies to return to financial health. The strategy literature offers an extensive body of research that focuses on how firms reverse firm-threatening performance declines to induce successful company

turnaround⁴ (see for example, Robbins and Pearce II, 1992; Barker and Duhaime, 1997; Sudarsanam and Lai, 2001; Bruton et al., 2003).

2.3.1 Hypothesis 1: Operating turnaround initiatives and going-concern opinions

An operating approach to company turnaround typically consists of actions related to cost reduction, revenue generation and operating-asset reduction. The focus is on achieving short-term financial relief, without considering long-term changes in the organization's strategy. In order to achieve short-term profitability improvement, companies have the opportunity to engage in classic retrenchment activities such as: divestment, product elimination, cost rationalization and employee layoffs. In addition to these retrenchment initiatives, revenue generating strategies may be pursued focusing on existing lines of products, price-cutting, increased marketing expenditures or increased direct sales efforts (Hofer, 1980).

Prior studies that examine the association between the implementation of operating approaches and successful company turnaround have focused on retrenchment activities and provide mixed results. Several studies report that classic retrenchment strategies are significantly associated with turnaround success (see, for example, Robbins and Pearce II, 1992), whereas other studies cast doubt on the value of operating approaches as part of a company's turnaround approach (Barker III and Mone, 1994; Sudarsanam and Lai, 2001).

The mixed evidence from the strategy literature indicates that operating turnaround strategies *per se* may not be capable of curing deficiencies in a declining firm's strategic orientation. In other words, if a declining firm's problems relate to its strategic positioning, these short-term cures could be inadequate, given that changing a firm's strategic orientation is a prerequisite to recovery (see also Schendel, Patton and Riggs, 1976; Hofer, 1980; Barker and Duhaime, 1997). As we investigate the auditor's perception of the effectiveness of operating turnaround approaches⁵ for distressed firms, a relevant question is which signal such approaches by themselves send to the auditor regarding the going-concern status of the company. Given the evidence reported above, it

⁴ Successful turnaround is defined as the reversal of a firm's pattern of performance decline (Schendel, Patton and Riggs, 1976).

⁵ These include cost-cutting activities, disposal of assets, increasing marketing efforts and improving existing products and operating processes – see also Section Model Specification.

is likely that auditors perceive operating turnaround strategies as insufficient to induce recovery for distressed companies and potentially as evidence that confirms the going-concern problems a distressed company may have.

This is indeed consistent with the finding reported by Geiger and Rama (2003), i.e. that cost-cutting or asset disposal activities are associated with a higher likelihood of receiving a going-concern audit report. This leads to our first hypothesis:

HYPOTHESIS 1: *For financially distressed companies, the implementation of (short-term) operating turnaround initiatives is likely to increase (ceteris paribus) the likelihood that a going-concern opinion is received.*

2.3.2 Hypothesis 2: Strategic turnaround initiatives and going-concern opinions

Overall, the evidence from the strategy literature suggests that (long-term) strategic turnaround approaches are successful turnaround vehicles. Barker III and Duhaime (1997) find that when a company's decline is firm-based and not caused by industry contraction, recovering firms implement more extensive strategic changes (which are consistent with reorientation). Sudarsanam and Lai (2001) provide evidence that firms recovering from financial distress typically adopt more forward-looking, expansionary and external market focused strategies, whereas non-recovery firms continue to engage in operating restructuring strategies. Given the evidence from the strategy literature about the effectiveness of strategic approaches for company turnaround and recovery, it is reasonable to expect that such strategies may also have a mitigating impact on the auditor's going-concern opinion. However, as the auditor's going-concern opinion is an assessment of the client's ability to survive during the next 12 months, only those (long-term) strategic approaches that are expected to have a positive impact on the company's liquidity status *within* the next 12 months will be perceived as mitigating factors. It is therefore necessary to further examine the short-term impact of the different types of long-term strategic approaches, i.e. cooperative agreements, product innovation and acquisition strategies.

Barker III and Duhaime (1997) emphasize that *cooperative agreements* with other firms are an essential element of a turnaround approach based on strategic change.

Examples of cooperative strategies include long-term contractual agreements with suppliers or buyers, alliances or joint ventures, subcontracting and technology licensing agreements⁶. Prior research about the consequences of the implementation of a cooperative strategy has shown that strategic networks such as strategic alliances, joint-ventures and long-term buyer-supplier relationships often have positive effects on different measures of corporate performance. For example, Mitchell and Singh (1996) reported evidence of alliances raising organisational survival rates. Powell, Koput and Smith-Doerr (1996) found that companies which had formed many alliances experienced accelerated growth rates. Gulati, Nohria and Zaheer (2000) highlight the idea that one of the most important benefits of strategic networks is the increased access to information, resources, markets and technologies. Moreover, alliances may be a preferred growth alternative to acquisitions if a high level of uncertainty exists because of their greater strategic flexibility and potentially lower levels of risk (Kogut, 1991; Hitt, Keats and DeMarie, 1998; Harrison, Hitt, Hoskisson and Ireland, 2001; Ireland, Hitt and Vaidyanath, 2002). The reasoning behind this is that alliances provide access to complementary assets and competences, while sharing the risks and costs with a partner. In addition to access to resources, Stuart (2000) found that strategic alliances also affect firm subsequent-period performance through their influence on an organization's reputation, particularly if the firm is of ambiguous quality.

This evidence from the strategic literature suggests that interfirm cooperations are strategic initiatives that are likely to have a positive impact on firm performance in the short run. Given that the auditor's going-concern decision is an assessment of the client's ability to survive during the next 12 months, we expect such strategies to send a positive signal to the auditor. Hence, we state the following hypothesis:

HYPOTHESIS 2A: *For financially distressed companies the implementation of strategic turnaround initiatives that are likely to generate short-term positive cash flows, is likely to reduce (ceteris paribus) the likelihood that a going-concern audit opinion is received.*

⁶ Note that strategic alliances are a popular financing vehicle for companies in financial distress, as partnering up with a successful healthy company can provide distressed companies with additional funding to develop or market products, or with other benefits such as a more extensive customer base (see, for example, Bruton et al. 2003). Another vehicle to improve financial position is engaging in a licensing strategy with regard to unused or high-risk technology. Licensing out proprietary technology can substantially improve a company's financial position as it periodically receives royalties and/or milestone payments (see, for example, Sudarsanam and Lai 2003). A company can also safeguard future sales by engaging into long-term contracting with buyers or distributors (Miller, 1992).

Capon, Farley, Lehman and Hulbert (1992) report that *new product* development and *strategic acquisitions* are important to a firm's long-term financial performance, and report evidence that suggests that both strategies act as substitutes in terms of effectiveness vis-à-vis company turnaround (i.e. non-innovative firms that involve in acquisitions perform nearly as well as those that engage in product innovations). However, the short-term performance impact of both types of strategic actions is not always favorable. In a recent meta-analytic review of merger and acquisition performance, King, Dalton, Daily and Covin (2004) report that acquisitions are *not* improving the short-term financial performance of acquiring firms, on average. Instead, this study indicates that the (short-term) returns for acquiring firms are insignificant or negative beyond the day a merger or acquisition is announced. This result holds for separate meta-analyses of both market returns (abnormal returns) and accounting returns (ROA, ROE and ROS). Additionally, Hitt and al. (1998) find the existence of a significant amount of financial slack to be an important attribute of successful acquisitions, whereas large or extraordinary debt characterizes unsuccessful acquisitions. This suggests that corporate acquisitions may not be adequate turnaround vehicles for severely distressed companies.

Similarly, prior research with respect to product development (e.g., Leonard-Barton, 1995; Winter and Szulanski, 2002; Mishina, Pollock and Porac, 2004) emphasizes that product expansion involves great levels of unpredictability as it requires the development of new routines or the recombination of old routines. This is corroborated by Calantone, Vickery and Dröge (1995), who describe new product development as a risky undertaking. With respect to its short-term impact on profitability, Mishina et al. (2004) even report a negative association of new product development with the rate of short-term sales growth.

In sum, these studies suggest that the introduction of new products and corporate acquisitions are highly unpredictable activities that are not likely to have a positive effect on financial performance within the next 12 months. Therefore, we expect that the auditor will not perceive these strategies as mitigating factors in the going-concern decision, but rather as going-concern risk factors. Hence, we state the following hypothesis:

HYPOTHESIS 2B: *For financially distressed companies the implementation of strategic turnaround initiatives that are unlikely to generate short-term positive cash flows, is likely to increase (ceteris paribus) the likelihood that a going-concern audit opinion is received.*

2.4 MODEL SPECIFICATION AND VARIABLE MEASUREMENT

We use the following logistic model to test our two hypotheses:

$$\text{REPORT} = f(\text{operating turnaround variables, strategic turnaround variables, control variables})$$

REPORT is an indicator variable that equals one if the auditor issues a going-concern report, and zero otherwise. The turnaround approach variables contain information regarding turnaround strategies that have been implemented by the company during the year under audit to overcome adverse conditions affecting corporate performance. This information is *manually* collected from corporate disclosures in the annual report and 10-K. We investigate the impact of two categories of turnaround strategies that can potentially mitigate the adverse conditions affecting company performance. In the category of operating turnaround strategies, we consider the impact of cost-cutting and asset disposal activities, product and operating process improvements and increasing marketing efforts. As strategic turnaround approaches, we consider cooperative agreements with other firms, the introduction of new products, mergers, and acquisitions. Finally, the control variables in our model encompass factors that have been found to be associated with the going-concern opinion in prior research.

2.4.1 Operating turnaround variables

Our classification of operating turnaround variables is based on Hofer (1980) who distinguishes between four different types of operating turnaround approaches: a) cost-cutting strategies, b) asset reduction strategies, c) revenue increasing strategies and d) combination strategies. Accordingly, we include and test variables reflecting a cost reduction strategy (O-COSTRED), an asset disposal strategy (O-DISPOSE), a commercial strategy (O-COMMERCIAL), and a strategy aimed at the improvement of existing products and processes (O-UPGRAD).

We define O-COSTRED as an operating turnaround variable that captures significant cost reduction efforts. In particular, this variable relates to both employee layoffs and other cost reduction efforts during the year under audit. O-COSTRED is set equal to one if the company reports cost reduction strategies for the year under audit, and

is set equal to zero otherwise. O-DISPOSE is defined as an operating turnaround variable that indicates whether a company engages in the sale of significant assets. O-DISPOSE is set equal to one if the company reports the sale of assets for the year under audit, and is set equal to zero otherwise. As opposed to operating actions aimed at reducing expenditures, short-term operating strategies also include a number of revenue generating activities (Hofer, 1980). Subsequently, we define O-COMMERCIAL as an operating turnaround variable that indicates whether a company increases its marketing efforts, and O-UPGRAD as a variable that relates to the realisation of improvements in existing products and production processes. O-COMMERCIAL is set equal to one if the company reports increased marketing efforts for the year under audit, and is set equal to zero otherwise. O-UPGRAD is set equal to one if the company reports product and/or process improvements for the year under audit, and is set equal to zero otherwise.

In order to extend and refine our analyses, we also define a number of strategic construct variables. This will enable us to test the aggregate impact of strategic turnaround variables that have similar characteristics on theoretical grounds. OPERATING is defined as the sum of O-COSTRED, O-DISPOSE, O-COMMERCIAL and O-UPGRAD, scaled by its maximum value in the sample. Note that a further refinement in short-term versus long-term impact variables would be tautological in the context of operating initiatives, as they are all expected to have a short-term impact on financial performance.

2.4.2 Strategic turnaround variables

Long-term strategic turnaround approaches typically relate to reconfiguration of the assets and/or the corporate portfolio, and product and/or market refocusing. S-EXPANSION is a strategic turnaround variable capturing whether a company engages in acquisitions of other companies to accelerate growth. S-EXPANSION is set equal to one if the company reports acquisitions for the year under audit, and is set equal to zero if such is not the case. We also include S-COOP, a variable that indicates whether a company enters into strategic alliances, joint-ventures, licensing agreements and other cooperative arrangements. S-COOP is set equal to one if a company entered in cooperative arrangements during the year under audit, and is set equal to zero if such is not the case. Further, we define S-PRODUCT as a strategic turnaround variable that assesses whether a company has recently introduced new products. S-PRODUCT is set equal to one if the

company reports the introduction of new products during the year under audit, and is set equal to zero if such is not the case.

Finally, we also introduce strategic construct variables to capture the aggregate impact of several strategic turnaround initiatives engaged in by the audited firm. We distinguish between strategic initiatives that are expected to have a positive cash flow impact in the short run (STRATST) or only in the long run (STRATLT). This categorization can be motivated by recent evidence in the strategy literature (see, King et al. 2004; Mishina et al. 2004) that acquisitions and product innovations are *not* improving the short-term financial performance of acquiring and innovating firms, respectively. Such a distinction in short-term and long-term financial impact is warranted given the going-concern decision context that we are investigating. STRATST is an indicator variable which happens to coincide with S-COOP, as the presence of cooperative agreements is the only strategic turnaround variable defined in this chapter that is likely to generate a financial impact within the next twelve months. STRATLT is defined as the sum of S-PRODUCTS and S-ACQUIS, divided by its maximum value in the sample. We also refer to Table 2.1, for an overview of definitions of the strategic variables.

2.4.3 Control variables

The issuance of a going-concern opinion is obviously conditional upon the auditee's financial condition. Therefore a first category of control variables that are included in our model capture the financial condition of the firm. Based on prior audit opinion studies (see, for example, Mutchler 1985; Chen and Church, 1992) we include cash flow from operations divided by total liabilities (CFOTL), the current ratio (CR), and long-term debt divided by total assets (LTDTA), as control variables. Following Menon and Schwartz (1987), we also include a change variable, namely the change in current ratio (CHANGECR). In line with Bell and Tabor (1991), we control for a company's liquidity performance relative to the industry by including an indicator variable (INDCR), which equals one if the current ratio of the company exceeds the industry median current ratio, and zero otherwise. As in Chen and Church (1992), we also add DEFAULT, an indicator variable that is set equal to one if the company defaults on debt payments or is in

technical default of loan covenants⁷, and zero otherwise. Furthermore, we include the natural log of total assets to control for company size (Chen and Church, 1992).

A second category of control variables constitutes mitigating factors identified in prior audit opinion research. Behn et al. (2001) find that plans to use existing bank lines of credit and other approved lines of credit are negatively associated with the likelihood of receiving a going-concern opinion. Consistent with Behn et al. (2001) we include BORROW, a variable that is set equal to one if the auditee plans to borrow funds through existing bank lines of credit or other approved debt instruments; and STOCK, a variable that is set equal to one if the auditee plans to issue equity through existing or committed arrangements. The definition of the test and control variables together with their hypothesized sign is given in table 2.1.

TABLE 2.1: VARIABLE DEFINITIONS AND EXPECTED SIGNS

Variables	Definition	Expected Sign
<i>Dependent variable</i>		
REPORT	1 if going-concern report issued, 0 otherwise	
<i>Independent variables</i>		
<i>Operating approach</i>		
O-COSTRED	1 if the company reports cost reducing activities for the year under audit, 0 otherwise	+
O-DISPOSE	1 if the company reports the sale of assets for the year under audit, 0 otherwise	+
O-COMMERCIAL	1 if the company reports increased marketing efforts for the year under audit, 0 otherwise	+
O-UPGRAD	1 if whether the company reports product and/or process improvements for the year under audit, 0 otherwise	+
OPERATING	A score from 0 to 4, scaled by its maximum value in the sample, representing the sum of all operating initiatives (O-COSTRED, O-DISPOSE, O-COMMERCIAL, O-UPGRAD)	+
<i>Strategic approach</i>		
S-EXPANSION	1 if the company reports acquisitions for the year under audit, 0 otherwise	+
S-COOP	1 if the company entered in cooperative arrangements for the year under audit, 0 otherwise	-
S-PRODUCT	1 if the company reports the introduction of new products for the year under audit, 0 otherwise	+
STRATST	Dummy variable, coded one if the company undertakes strategic initiatives with a short-term impact (S-COOP)	-
STRATLT	A score from 0 to 2, scaled by its maximum value in the sample, representing the sum of all strategic initiatives with a long-term impact (S-EXPANSION, S-PRODUCTS)	+

⁷ A company's default status was determined by reading the MD&A and debt footnotes in the financial statements.

TABLE 2.1: VARIABLE DEFINITIONS AND EXPECTED SIGNS

Variables	Definition	Expected Sign
<i>Control variables</i>		
CR	Current ratio	-
LTDTA	Long term debt divided by total assets	+
LNTA	Natural log of total assets	-
CFOTL	Cash flow from operations divided by total liabilities	-
INDCR	1 if company CR exceeds industry median, 0 otherwise	-
CHANGECR	One year change in current ratio	-
DEFAULT	1 if in payment default or technical default of loan covenants, 0 otherwise	+
STOCK	1 if the company plans to sell a significant amount of equity, 0 otherwise	-
BORROW	1 if the company plans to rely on existing loans and credit agreements, 0 otherwise	-

2.5 SAMPLE SELECTION AND DATA COLLECTION

2.5.1 Sample selection

Consistent with prior going-concern studies (see, for example, Mutchler, 1985; Chen and Church, 1992; and Behn et al., 2001) we selected a sample adopting a matched pair design. In particular, we first selected a sample of companies that received a first-time going-concern opinion and then selected a matched sample of distressed companies that did not receive a going-concern opinion. Note that a matched pair design is used most frequently when the research design necessitates manual data collection, as is the case in this study.

Selection of going-concern firms

We identified all firms from the Worldscope database that are listed on AMEX, NASDAQ and NYSE and received a going-concern audit opinion in the period 1998-2001. Consistent with prior studies (Mutchler and Williams, 1990; Behn et al., 2001; Blay and Geiger, 2001), we restricted our sample to companies in the manufacturing industries (SIC 20 to 39) to eliminate confounding industry effects. This resulted in an initial sample of 276 manufacturing companies that received a going-concern audit opinion in fiscal years 1998-2001. From this initial sample, we then eliminated companies that received a

going-concern report in the previous year to control for potential confounding effects from prior going-concern opinions (see also, Mutchler, 1985, Blay and Geiger, 2001; Behn et al., 2001). In addition, we excluded firms that faced bankruptcy proceedings as the decision to issue a going-concern opinion is trivial for such firms, and firms for which no match could be identified. This resulted in 57 firms with going-concern opinions: 8 firms in 1998, 8 firms in 1999, 15 firms in 2000, and 26 firms in 2001.

Selection of control firms

To test our going-concern model, we matched the going-concern sample with a sample of distressed companies that did not receive a going-concern report. We searched the Worldscape database from 1998 to 2001 to identify all manufacturing companies listed on NASDAQ, NYSE or AMEX that received a clean audit opinion. Consistent with prior studies, we further restricted the control sample to firms in financial distress (see, for example, Mutchler, 1985; McKeown, Mutchler and Hopwood, 1991; Chen and Church, 1992; Behn et al., 2001). Based on Chen and Church (1992) we adopt the following criteria to identify distressed companies: 1) negative retained earnings, 2) negative operating income, 3) negative net income, 4) negative working capital, 5) negative net worth, and 6) negative operating cash flows. Note that Chen and Church (1992) classified a company as stressed if it met at least one distress criteria. We use a more stringent rule for financial distress, by classifying a company to be stressed if it meets at least two of the above stress criteria. This procedure yielded 2929 “distressed” companies that received a clean opinion during the period 1998-2001.

As we use a matched-pair design, we matched control-sample companies to the going-concern firms based on year, size (proxied by total assets) and two-digit SIC classifications. This procedure ensures that we include similar companies with respect to size and industry in both sub-samples. A matched group design has been used previously by Mutchler (1985), Chen and Church (1992), Behn et al. (2001) and Geiger and Rama (2003). A limitation of this choice-based sample selection approach is that it overstates the issuance of a going-concern opinion in this experimental setting. Note that we address this issue by our statistical approach, as we adopt logistic regression analysis (see further). This approach yields a total sample of 114 (2 x 57) distressed firm observations. Two observations were identified as outliers and were removed from the sample. Hence, our

final sample consists of 112 distressed firm observations. The number of observations per industry is given in table 2.2.

TABLE 2.2: SAMPLE COMPANIES PER TWO DIGIT INDUSTRY GROUPING

Two-digit SIC Code	Industry name	Number of Companies
20	Food and Kindred Products	6
27	Printing and Publishing	2
28	Chemicals and Allied Products	32
30	Rubber and Miscellaneous Plastic Products	2
33	Primary Metal Industries	2
34	Fabricated Metal Products	2
35	Industrial Machinery and Equipment	10
36	Electronic and Other Equipment	26
37	Transportation Equipment	10
38	Instruments and Related Products	20
		112

2.5.2 Data collection and strategic scorecard

As strategic company information is not publicly available, we manually collected this information from the relevant 10-Ks filed with the SEC, by reading these documents cover to cover and completing a strategic scorecard. The strategic scorecard used to test our hypotheses is included in Appendix 2.1. For each of the defined turnaround approaches we assessed whether the company has engaged in actions related to that specific turnaround initiative during the year under audit. Per initiative, a score equal to one is assigned if a firm discloses such action, and zero otherwise.

The suitability of 10-K filings for strategic information collection is supported by prior studies that investigated the association between disclosures in the MD&A and future corporate financial performance. These studies report evidence indicating that the information content of narrative disclosures in the annual report is significantly associated with the future viability of distressed firms (see, for example, Tennyson and Ingram, 1990; Boo and Simnett, 2002). Boo and Simnett (2002) examine the reliability of management's prospective comments for a sample of 140 Australian public companies that had experienced significant losses. Their results indicate that these prospective comments have significant information content with respect to the company's future viability. Note also that SAS No. 8 requires auditors to ensure that the 'other information' attached to financial statements is not materially inconsistent with the financial statements, and does

not contain any material misstatement. Furthermore, the costs of potential litigation and loss of reputation are important factors to prevent management from disclosing misleading information.

Note that the dependent variable and (most of) the control variables in the model are collected from the WORLDScope data base. The information regarding management's plans to rely on existing borrowing capacity or to issue equity is also retrieved from companies' 10-K.

2.6 RESULTS

2.6.1 Descriptive statistics and univariate results

Tables 2.3 and 2.4 contain the descriptive statistics for the test and control variables. The descriptive statistics in Table 2.3 relate to the full sample (of distressed companies), whereas the descriptive statistics in Table 2.4 are given for the going-concern and non-going-concern samples separately. Table 2.4 also reports the results of a t-test of differences between the going-concern and non-going-concern samples. Inspection of Table 2.3 reveals that the most common turnaround approaches in our (full) sample of distressed firms are the cost reduction strategy (O-COSTRED, appearing in 60% of the sample firms) and the cooperative strategy (S-COOP, appearing in 60% of the sample firms). All other approaches only occur in between 15 and 35 percent of the sample firms.

TABLE 2.3: DESCRIPTIVE STATISTICS

	Mean	Median	Std. Dev.	Minimum	Maximum
<i>Operating approach</i>					
O-COSTRED	0.60	1.00	0.49	0.00	1.00
O-DISPOSE	0.31	0.00	0.47	0.00	1.00
O-COMMERCIAL	0.27	0.00	0.44	0.00	1.00
O-UPGRAD	0.21	0.00	0.41	0.00	1.00
OPERATING	0.35	0.25	0.23	0.00	1.00
<i>Strategic Approach</i>					
S-EXPANSION	0.15	0.00	0.36	0.00	1.00
S-COOP	0.60	1.00	0.49	0.00	1.00
S-PRODUCT	0.33	0.00	0.47	0.00	1.00
STRATST	0.60	1.00	0.49	0.00	1.00
STRATLT	0.24	0.00	0.29	0.00	1.00

TABLE 2.3: DESCRIPTIVE STATISTICS

	Mean	Median	Std. Dev.	Minimum	Maximum
<i>Control variables</i>					
CR	3.27	1.75	5.46	0.21	45.45
LTDTA	0.13	0.02	0.28	0.00	1.97
LNTA	10.34	9.83	1.55	7.06	14.56
CFOTL	-1.55	-0.32	3.27	-25.82	1.28
INDCR	0.31	0.00	0.47	0.00	1.00
CHANGECCR	-0.65	-0.49	4.66	-14.48	31.83
DEFAULT	0.36	0.00	0.48	0.00	1.00
STOCK	0.13	0.00	0.33	0.00	1.00
BORROW	0.28	0.00	0.45	0.00	1.00

The results in Table 2.4 indicate that the companies that received a going-concern audit report have a significantly lower current ratio (CR, t-statistic = 2.91), are more likely to have a lower current ratio than the industry average value (INDCR, t-statistic = 5.18), are less likely to be in default (DEFAULT, t-statistic = 3.73) and engage less frequently in additional borrowings (BORROWING, t-statistic = 5.42). These results are consistent with going-concern opinions being issued for distressed companies that face short-term liquidity problems. Note that the non-significant differences between the two samples with respect to the other financial distress variables (other than liquidity measures) and total assets are supporting the efficacy of our matching procedures. Only a few turnaround activities appear to be significantly different for going-concern and non-going-concern companies. The strongest result is found for cost-cutting activities which are significantly more common in the sample of going-concern firms (O-COSTRED, t-statistic = 2.14). The aggregate OPERATING variable is also (weakly) significantly higher for the going-concern sample (OPERATING, t-statistic = 1.99). The occurrence of strategic turnaround activities is generally not significantly different between going-concern and non-going-concern firms.

TABLE 2.4: UNIVARIATE TESTS OF DIFFERENCES BETWEEN GOING-CONCERN FIRMS AND NON-GOING-CONCERN FIRMS

	Non-Going-Concern sample		Going-concern sample		Test of difference
	Mean	Std. Dev.	Mean	Std. Dev.	(t-statistic)
<i>Operating approach</i>					
O-COSTRED	0.50	0.50	0.70	0.46	2.14**
O-DISPOSE	0.27	0.45	0.36	0.48	1.01
O-COMMERCIAL	0.25	0.44	0.29	0.46	0.42
O-UPGRAD	0.20	0.40	0.21	0.41	0.23
OPERATING	0.30	0.23	0.39	0.22	1.99**
<i>Strategic Approach</i>					
S-EXPANSION	0.11	0.31	0.20	0.40	1.32
S-COOP	0.66	0.48	0.54	0.50	1.35
S-PRODUCT	0.29	0.46	0.38	0.49	1.00
STRATST	0.66	0.48	0.54	0.50	1.35
STRATLT	0.20	0.28	0.29	0.30	1.63
<i>Control Variables</i>					
CR	4.72	6.98	1.81	2.67	2.91***
LTDTA	0.10	0.16	0.15	0.36	1.02
LNTA	10.35	1.52	10.33	1.59	0.05
CFOTL	-1.58	3.84	-1.52	2.61	0.10
INDCR	0.52	0.50	0.11	0.31	5.18***
CHANGECCR	0.12	5.74	-1.42	3.12	1.76*
DEFAULT	0.20	0.40	0.52	0.50	3.73***
STOCK	0.13	0.33	0.13	0.33	0.00
BORROW	0.48	0.50	0.07	0.26	5.42***

* indicates significance at the .10 level (two-tailed)

** indicates significance at the .05 level (two-tailed)

*** indicates significance at the .01 level (two-tailed)

2.6.2 Multivariate logistic analysis

To test our hypotheses and assess which strategic and operating variables are significantly different between going-concern and other firms we estimate three logistic regression models. Logistic regression analysis (instead of probit analysis) is highly appropriate as we adopt a matched sampling approach. The use of logistic regression analysis neutralizes potential problems resulting from oversampling going-concern companies relative to the population proportion. This can be attributed to the fact that the coefficients of the independent variables are not affected by disproportionate sampling, only the intercept term is biased. However, since we are not estimating parameters for the purpose of developing a predictive model, the bias in the intercept term has no effect on our analysis and conclusions (Maddala, 1991). We also tested whether there are multicollinearity problems between the independent variables that may affect our results. Inspection of the correlation matrix (see Appendix 2.2) indicates that most correlations

between the independent variables are below 30 percent. As there are some larger correlations, we also calculated VIF factors, but all VIF scores are below 4.55.

We report the results from our multivariate logistic analyses in Table 2.5. We estimate three models. Model 1 is estimated to establish a base model for going-concern opinions based on prior audit opinion studies, and thus mainly includes financial health variables and variables that capture the ability to engage in additional borrowings and stock issues. Models 2 and 3 are estimated to test our hypotheses and assess which strategic and operating variables have incremental explanatory power beyond the control variables.

Model 1 has good explanatory power with a chi-square statistic equal to 79.28, a pseudo R^2 equal to 0.61 and a McFadden R^2 equal to 0.51. The current ratio (CR, $p = 0.0056$), firm size (LNTA, $p = 0.0905$), operating cash flow over total liabilities (CFOTL, $p = 0.0001$), the company's current ratio relative to the industry (INDCR, $p = 0.0086$), default on debt obligations (DEFAULT, $p = 0.0029$) and capacity to borrow (BORROW, $p = 0.0036$) are significant in a multivariate setting. These results indicate that in a distressed firms' context, poor liquidity is positively associated with the likelihood of receiving a going-concern opinion, whereas the ability of a firm to rely on existing borrowing capacity is a mitigating factor. Note again that lack of significance of the other financial variables illustrates the efficacy of our matching procedures.

We estimate Model 2 in order to investigate the incremental explanatory power of all defined operating and strategic initiatives (see Table 2.1 for their definitions). Including the individual strategic and operating variables in the going-concern model improves the model's explanatory power, with a model chi-square equal to 103.84 (instead of 79.28 for Model 1), a pseudo R^2 equal to 0.67 (instead of 0.61 for Model 1) and a McFadden R^2 equal to 0.67 (instead of 0.51 for Model 1). Of the four turnaround variables that capture operating initiatives, the cost-cutting variable (O-COSTRED, $p = 0.0070$) is positively and significantly associated with the likelihood of receiving a going-concern opinion. This result is consistent with the evidence in Geiger and Rama (2003). The analysis further indicates that increased marketing efforts (O-COMMERCIAL, $p = 0.0051$) yield a similar positive result, indicating that marketing activities increase the likelihood of receiving a going-concern opinion. These findings are consistent with our first hypothesis, stating that

operating turnaround strategies do not function as mitigating factors in an audit opinion decision context, but rather reinforce the signal that the company faces going-concern problems. This is consistent with evidence from the strategy literature that companies that only implement operating turnaround actions without (subsequently) implementing strategic turnaround actions have a lower survival chance (Sudarsanam and Lai, 2001). Finally, we do not find a significant result for O-DISPOSE and O-UPGRAD.

Of the three defined strategic turnaround variables both S-COOP ($p = 0.0437$) and S-PRODUCT ($p = 0.0962$) are significantly associated with the likelihood to receive a going-concern opinion. S-COOP is negatively associated with the likelihood of receiving a going-concern opinion. This result is consistent with the prediction in Hypothesis 2a, and indicates that companies that entered into cooperative agreements with other firms during the year under audit are less likely to receive a going-concern audit report. This also implies that cooperative agreements are seen as positive turnaround signals by the auditor (with favourable liquidity effects already within the next 12 months) and hence can be considered as a mitigating factor. This result is not surprising, as prior research has shown that strategic networks often have positive effects on corporate performance through access to resources and its influence on corporate reputation (Mitchell and Singh, 1996; Powell et al., 1996; Stuart, 2000).

Consistent with hypothesis 2b, S-PRODUCT ($p = 0.0962$) or product innovation is positively associated with the likelihood of receiving a going-concern opinion. As stated previously, this type of strategic initiative although potentially successful, is not likely to generate a positive cash flow effect in the next twelve months. As a consequence, the results of our analyses show that product innovations in a distressed firm context (and in their initial stage – that is the year during which the initiative has been taken) are perceived as a going-concern risk factor. S-EXPAND ($p = 0.1287$), or growth through mergers and acquisitions, is also a strategic initiative that is highly unlikely to generate a positive cash flow effect in the next twelve months. Although not significant, it has a positive sign. Both results can be explained by the fact that, in a *distressed firm* context, the presence of recently undertaken strategic actions with a long-term positive cash flow effect (such as the introduction of new products and the acquisition of another company) may be perceived as very risky actions of which the outcome is uncertain. As evidenced by prior evidence in the strategy literature (King et al. 2004) it is not very likely that an acquisition improves liquidity within in the next twelve months. Similarly, it is not very

likely that the introduction of new products leads to massive positive cash flows in the first year. Note that Mishina et al. (2004) even report a negative association between product innovation and short-term financial performance.

In Model 3 we test construct variables that are based on Hofer's (1980) classification of turnaround initiatives into operating (OPERATING) versus strategic approaches (STRATST and STRATLT). As indicated before, we make a distinction between strategic growth initiatives that are likely to have a short-term versus long-term cash flow impact (STRATST vs. STRATLT). We believe that this refined categorization is necessary given the going-concern opinion context in which we study strategic actions, as well as recent findings in the strategy literature (King et al., 2004; Mishina et al. 2004) that indicate that some strategic actions do not have a short-term positive effect on financial performance. The explanatory power of Model 3 clearly outperforms Model 1, with a model chi-square of 95.65, a pseudo- R^2 of 0.66 and a McFadden R^2 equal to 0.62. Estimation of Model 3 yields significant and strong results for all three strategic constructs, i.e. OPERATING ($p = 0.0067$), STRATST ($p = 0.0448$) and STRATLT ($p = 0.0097$). The results are supportive of our first hypothesis that operating initiatives do not have a mitigating impact on the going-concern decision. More specifically, the implementation of operating initiatives seems to send a negative signal to the auditor as they are associated with a significantly higher likelihood that a going-concern report is received. Consistent with Hypotheses 2a, our results further indicate that strategic initiatives that are likely to generate positive cash flows in the short run serve as a mitigating factor, as STRATST has a negative coefficient. Note that our third strategic construct variable, STRATLT is positively and significantly associated with the likelihood of receiving a going-concern opinion. This confirms hypothesis 2b, suggesting that strategic initiatives that are only likely to have a positive cash flow effect in the long run are perceived by the auditor as going-concern risk factors.

TABLE 2.5: LOGISTIC REGRESSION ESTIMATES

Variables	Predicted sign	Model 1		Model 2		Model 3	
		coeff	χ^2	coeff	χ^2	coeff	χ^2
C		-3.78	2.13	-7.57	2.75	-4.66	1.69
CR	-	-0.88	7.67	-1.82	12.65	-1.29	11.50
LTDTA	+	0.95	0.51	-0.93	0.14	0.56	0.09
LNTA	-	0.42	2.87	0.63	2.37	0.38	1.34
CFOTL	-	-1.42	14.58	-2.92	14.76	-2.13	15.72
INDCR	-	-3.08	6.91	-8.06	11.33	-5.60	11.86
CHANGEGR	-	-0.01	0.02	0.12	0.70	0.01	0.01
DEFAULT	+	2.11	8.84	3.54	8.45	2.31	6.53
STOCK	-	-0.13	0.02	-0.48	0.17	-0.67	0.41
BORROW	-	-2.58	8.47	-3.96	9.89	-3.05	7.73
O-COSTRED	+			3.22	7.27		
O-DISPOSE	+			0.93	0.75		
O-UPGRAD	+			1.05	1.29		
O-COMMERCIAL	+			4.56	7.83		
S-COOP	-			-2.45	4.07		
S-EXPAND	+			1.88	2.31		
S-PRODUCT	+			1.70	2.77		
OPERATING	+					6.51	7.36
STRATST	-					-1.95	4.03
STRATLT	+					4.09	6.68
Pseudo R ²			0.61		0.67		0.66
McFadden R ²			0.51		0.67		0.62
Model χ^2			79.28		103.84		95.65

p-values are from two-sided tests.

Overall, the evidence that we present suggests that the inclusion of variables that capture operating and strategic turnaround initiatives enhances the explanatory power of going-concern opinion models for distressed firms. Also, the results indicate that the presence of cost reduction strategies or increased marketing efforts is perceived as an additional going-concern risk factor as these strategies increase the likelihood of receiving a going-concern opinion. Product innovations, although they are quite different in nature, seem to be perceived equally risky. On the contrary, cooperative agreements provide positive signals about the going-concern status of the firm and therefore seem to function as a mitigating factor. Our tests of aggregated constructs of operating and strategic variables with similar features confirm these conclusions.

2.6.3 Supplementary analyses

Because the operating and strategic turnaround variables are derived from client disclosures, we also re-ran the models including a set of variables that control for potential systematic differences amongst firms in making voluntary disclosures. By doing this, we aim to ensure that the operating and strategic test variables capture a firm's strategic performance instead of its general propensity to disclose corporate information. Botosan (1997) reports that four firm characteristics are significantly positively correlated with the propensity to disclose, namely: exchange listing status, firm size, audit-firm size, and leverage. Note that firm size and leverage are already included in our model specifications given their previously mentioned association with going-concern audit reports (see *supra*). As far as exchange listing status is concerned, prior studies (see, for example, Branson, Guffey and Pagach, 1998) find that there is typically less information provided by NASDAQ firms as opposed to NYSE/AMEX firms. We reran our analyses including two additional indicator variables: (1) EXCHANGE, which equals one if the firm is traded on NASDAQ, and zero otherwise; and (2) AUDITOR, which is an indicator variable that equals one if the company is audited by a big N audit firm. The results show that including these two additional control variables (EXCHANGE and AUDITOR) does not add significant explanatory power ($p < 0.9875$ and $p < 0.6949$) and leaves the results largely unchanged.

Rosman, Seol and Biggs (1999) report that an auditor's consideration of non-financial information in a going-concern task differs between start-up and mature

companies. We performed several analyses to ensure that our results are not driven by company age. Univariate analyses of company age (AGE) across both the experimental and control samples indicate that there is no difference between going-concern and non-going-concern firms ($p = 0.9726$) regarding age. Including AGE in our test models does not add significant explanatory power nor changes the significance levels of the other variables. We also assessed possible interaction effects of AGE with the seven strategic variables defined in this study. The results of this analysis indicate that the introduction of new products ($p = 0.0332$) has a less negative impact on the going-concern decision if the company under audit is mature.

2.7 CONCLUSIONS

In this study we examine the impact of a broad range of operating and strategic turnaround initiatives on the likelihood that an auditor issues a going-concern audit opinion. We analyse whether these turnaround activities are functioning as mitigating factors or as going-concern risk factors. Prior studies that assess the impact of management plans on going-concern decisions (see, for example, Behn et al., 2001; Geiger and Rama, 2003) look at forward-looking plans relating to retrenchment activities and future financing. In this study, we investigate a more comprehensive set of strategic and operating actions. Consistent with the strategy literature, we classify strategic actions into (short-term) operating versus (long-term) strategic turnaround approaches. Based on the mixed results in the strategy literature regarding the effectiveness of short-term operating turnaround initiatives and recent going-concern research by Geiger and Rama (2003), we hypothesize that such activities are perceived as going-concern risk factors that increase the likelihood of receiving a going-concern audit report (Hypothesis 1). Based on the findings in the strategy literature, we further hypothesize a significant relationship between strategic turnaround approaches and the likelihood of receiving a going-concern opinion. However, given the going-concern decision-making context we distinguish between strategies that are expected to generate a positive cash flow effect within the next twelve months and strategies that are only likely to have a positive impact on performance in the long run. More specifically, we hypothesize that strategies that are likely to have a positive effect on performance in the short run function as mitigating factors (Hypothesis

2a), whereas strategies that are not likely to generate a cash flow effect in the short run (and on top of that are quite risky) are expected to be perceived as going-concern risk factors (Hypothesis 2b).

We find indeed that the presence of cost reduction and marketing strategies is perceived as a going-concern risk factor and increases the likelihood to receive a going-concern opinion, whereas cooperative agreements provide positive signals about the going-concern status of the firm and therefore can be interpreted as mitigating factors. Moreover, our evidence suggests that product innovations – which are not likely to generate a positive cash flow effect within the next twelve months - are not perceived as mitigating factors but rather as going-concern risk factors.

In addition to testing the impact of individual operating and strategic initiatives, we extended our analysis by testing aggregated constructs of operating and strategic variables that have similar features. We identify three different constructs: operating initiatives, strategic turnaround initiatives that are not likely to generate positive cash flow effects in the short run, and strategic turnaround initiatives that are likely to do so. The analyses confirm that operating turnaround initiatives taken by distressed firms are associated with a higher likelihood that a going-concern opinion is received. A similar result is obtained for strategic initiatives that are only likely to generate positive cash flow effects in the long run. On the contrary, the presence of strategic turnaround initiatives that are likely to generate positive cash flow effects in the short run is negatively associated with the likelihood that a going-concern opinion is received. Thus, our evidence suggests that auditors perceive the engagement in operating initiatives and strategic growth initiatives that only yield a financial impact in the long run as going-concern risk factors, but the engagement in strategic growth initiatives that generate a short-term financial impact as a mitigating factor.

This study is subject to a number of limitations. The first set of limitations relates to the dataset. The sample size in this study is kept rather small ($n=112$) due to the manual collection of the strategic variables. In addition, only companies from manufacturing industries are included in the sample. Further research is needed to determine the generalizability of our findings across industries.

Third, we use the disclosure of strategic plans and information in the annual report and 10-K as a proxy of client strategic activity. This measure does not take into account

strategic plans that are disclosed directly to the auditor without being mentioned in the company's 10-K. However, we believe that this will not have a substantial impact on our results since the suitability of 10-K filings for non-financial information collection is supported by prior research (see, for example, Boo and Simnett, 2002) and SEC registrants are required to disclose trends, demands, commitments, events and uncertainties presently known to management and likely to have material effects on the registrants financial condition (Securities Act Release no. 6835).

Furthermore, although recommended by SAS no. 59, we do not actually measure the adequacy or feasibility of the publicly disclosed strategic plans. Future research might address this issue by linking information with respect to a distressed companies' operating and strategic health to the implemented turnaround initiatives in order to assess their appropriateness or feasibility.

CHAPTER 3

Strategic Performance and Auditors' Going-Concern Judgment: Memory for Audit Evidence

ABSTRACT

This study experimentally explores the effect of operating and strategic management plans on going-concern judgment. Prior archival going-concern research (Behn, Kaplan and Krumwiede, 2001; Geiger and Rama, 2003 and chapter 2 of this dissertation) indicates that in a distressed firm context, operating management initiatives such as cost-cutting have a negative impact on auditors' going-concern judgment, whereas strategic initiatives with a positive short-term impact on liquidity generally have a positive impact on auditors' going-concern judgment. We add to this research by investigating whether these initiatives directly impact going-concern decision-making or whether they affect going-concern judgment indirectly through memory for financial evidence. In addition, we propose that strategic and operating management initiatives have a more pervasive impact on experienced auditors' going-concern judgment.

The results of an experiment indicate that (a) strategic management initiatives which generate short-term cash inflows have a positive *direct* effect on going-concern decision-making, and (b) operating and strategic initiatives to mitigate financial distress both have a negative *indirect* effect on experienced auditors' going-concern judgment through memory for financial evidence.

3.1 INTRODUCTION

This study experimentally investigates the effect of strategic viability information on going-concern judgment. Prior archival going-concern research (Behn, Kaplan and Krumwiede, 2001; Geiger and Rama, 2003; and chapter 2 of this dissertation) indicates that client operating and strategic actions to address financial distress are important factors in going-concern decision-making. More specifically, this literature indicates that operating management initiatives generally have a negative impact on auditors' going-concern judgment, whereas strategic initiatives that are likely to have a short-term impact on liquidity generally have a positive impact on auditors' going-concern judgment. Although these studies provide evidence of a significant effect of strategic and operating initiatives on going-concern judgment, they do not explain *how* these initiatives impact the auditor's going-concern judgment. That is, this literature does not indicate whether the strategic performance of the company has a significant *direct* effect on the auditor's going-concern decision or whether it merely impacts going-concern judgment *indirectly* by changing the interpretative framework for financial information. Therefore the purpose of this study is to assess the strength of the direct and indirect relations between management actions, auditors' consideration of financial going-concern evidence and going-concern judgment. We further consider how and to what extent these relations change when going-concern decision-making is performed by an experienced auditor versus a novice auditor.

Understanding the direct and indirect effect of management actions on auditors' viability judgment is important in the light of the introduction of the business risk audit methodology in most large accounting firms. Auditors who use this business risk audit approach conduct a strategic viability assessment, which provides a thorough understanding of the client's strategy to obtain a competitive advantage within its business environment and the risks that threaten the attainment of its business objectives (Bell, Marrs, Solomon and Thomas, 1997). This strategic assessment is likely to influence auditor expectations about the client's operating results and financial condition, and as such may impact auditors' evaluation of audit evidence. In this study, we assess how the implementation of operating and strategic actions to mitigate financial problems changes the interpretative framework for subsequent financial information, which in turn might lead to a change in auditors' consideration of financial going-concern evidence.

The findings indicate that strategic turnaround initiatives which generate positive cash flows in the short run are likely to have an overall positive impact on going-concern judgment. This is consistent with the results from chapter 2, which show that this type of initiatives is perceived by auditors as a mitigating factor. Furthermore, the investigation of direct and indirect effects indicate that (a) strategic initiatives which generate short-term cash inflows have a positive direct effect on the going-concern decision and (b) operating and strategic turnaround initiatives both have a negative indirect effect on experienced auditors' going-concern decision. These results suggests that management turnaround initiatives do not only impact auditors' going-concern decision directly, but also influence going-concern decision-making indirectly by changing auditors' evaluation of subsequent financial information. Moreover, we find that the latter effect is different for experienced and inexperienced auditors.

The remainder of this chapter is organized as follows. Section 3.2 is devoted to our research framework. In Section 3.3 we develop our hypotheses. Section 3.4 describes the research method and section 3.5 presents the results. In section 3.6, we summarize and conclude the study.

3.2 RESEARCH FRAMEWORK

As previously mentioned, certain large audit firms have designed and implemented a business risk audit approach, which has a top-down, holistic, business risk orientation. Under this new audit approach, "understanding the client's business" is critical. Therefore, a formal analysis of the entity's strategy and whether it can be achieved is considered to be an important step in the financial statement audit process. More specifically, the business risks that threaten the achievement of the client's strategy are identified along with the responses of the client to such risks. This makes strategic performance information particularly salient when judging business viability. However, it is not clear whether strategic performance directly affects the going-concern judgment or whether it merely has an indirect effect by changing the processing of subsequent financial information.

Our investigation of the potential indirect effect of strategic performance on going-concern judgment is motivated by prior business risk audit research, which suggests that the holistic perspective that auditors acquire when evaluating their client's strategic

viability impacts the auditor's evaluation of subsequent evidence. For example, a study by Ballou, Earley and Rich (2004) suggests that an auditor's evaluation of a client's strategic positioning affects the processing of subsequent information regarding the underlying business processes. More specifically, the results of this study show that when the auditor's strategic assessment is unfavorable, subsequent business information is processed more thoroughly and auditors are more likely to identify whether a risk-increasing item is present or absent. When we apply this finding to a going-concern decision-making context, we expect auditors' evaluation of client strategic and operating initiatives before processing going-concern evidence to impact auditors' attention for going-concern risk factors. As such, client strategic and operating initiatives would not only affect going-concern judgment directly, but also indirectly through the processing of subsequent going-concern evidence.

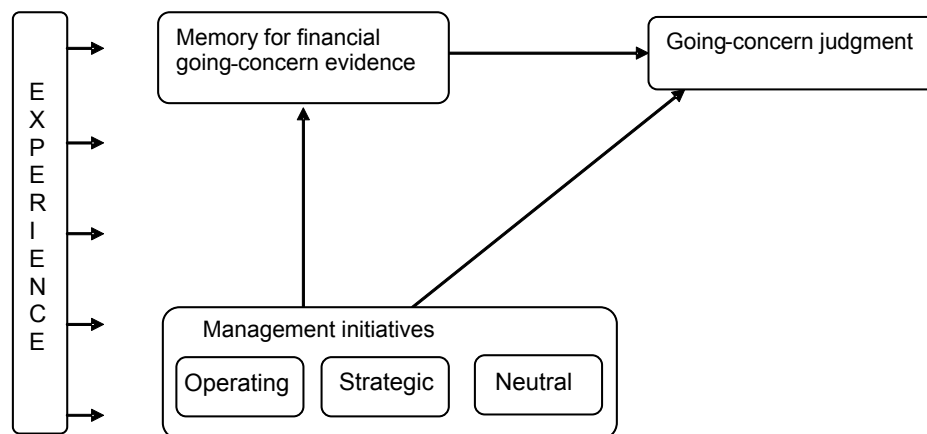
In our research model, we also consider the impact of audit experience on auditors' consideration of client operating and strategic initiatives to mitigate adverse conditions. This is motivated by prior research which indicates that an experienced auditor's information acquisition process generally aims at getting a thorough understanding of the client, the nature of its business etc. (Biggs, Mock and Watkins, 1988; Biggs, Selfridge and Krupka, 1993). Furthermore, research has shown that experienced auditors attend more to mitigating going-concern information than inexperienced auditors (Choo and Trotman, 1991; Hoffman, Joe and Moser, 2003). This suggests that experienced auditors may attach more importance to client operating and strategic turnaround initiatives, relative to novice auditors.

In order to assess the impact of strategic performance on the auditor's going-concern judgment, we varied client turnaround initiatives among experimental conditions. Consistent with the strategy literature (e.g. Robbins and Pearce, 1992; Barker and Duhaime, 1997; Sudarsanam and Lai, 2001) our research design distinguishes between operating management actions, which focus on internal, operating problems of firms, and strategic management initiatives which aim to solve external, strategic problems. Consequently, participants in the OPERATING condition receive case material indicating that the client attempts to mitigate financial problems through the implementation of operating management initiatives such as cost-cutting. In contrast, participants in the STRATEGIC condition were provided with case material indicating that the client attempts to restore profitability by implementing strategic management initiatives that are

likely to have a short-term cash flow effect such as forming alliances with other firms. In order to assess the net effect of different strategic initiatives, we compare auditor judgments in the OPERATING and STRATEGIC conditions to a CONTROL condition where participants received no information regarding current operating or strategic initiatives.

In accordance with prior going-concern literature, we measure participants' attention to going-concern evidence items by collecting cues recalled (e.g. Choo and Trotman, 1991; Tan, 1995; Rau and Moser, 1999; Hoffman et al., 2003). This is based on the assumption that recall of different types of audit evidence can be seen as a proxy for selective attention for audit evidence (Tan, 1995). The ideas addressed in this study are presented in figure 3.1.

FIGURE 3.1: HYPOTHESIZED RELATION BETWEEN CLIENT STRATEGIC INITIATIVES, EXPERIENCE, MEMORY FOR GOING-CONCERN EVIDENCE AND THE GOING-CONCERN OPINION.



3.3 HYPOTHESES DEVELOPMENT

3.3.1 Direct effect of management initiatives on going-concern judgment

The first set of hypotheses deals with the direct impact of management initiatives on going-concern judgment. Hypothesizing a direct link between management initiatives and going-concern judgment is motivated by the fact that US and Belgian auditing standards explicitly require auditors to consider non-financial matters and mitigating management plans when making a going-concern decision. Moreover, both auditing

standards give examples of operating (e.g. cost-cutting initiatives), as well as strategic (e.g. loss of a key franchise or license) factors as potentially useful going-concern evidence. This strongly suggests that auditors take into account the mitigating or aggravating impact of operating and strategic management initiatives on client viability when making a going-concern decision.

Our prediction of the directional effect that operating and strategic management actions have on going-concern decision-making is based on the strategic literature with respect to the relationship between successful turnaround and management implementation of operating and strategic initiatives. Overall, the evidence from the strategy literature suggests that strategic initiatives generally are associated with successful company turnaround. Barker and Duhaime (1997), for example, show that when a company's decline is firm based, recovering firms implement more extensive strategic changes. In addition, research by Sudarsanam and Lai (2001) indicates that firms recovering from financial distress typically adopt more forward-looking, expansionary and external market focused strategies than non-recovery firms. Prior studies with respect to the efficacy of operating initiatives mainly focused on retrenchment activities and yielded mixed results (see, for example, Robbins and Pearce II, 1992; Barker and Mone, 1994; Sudarsanam and Lai, 2001). This indicates that operating turnaround initiatives *per se* may be inadequate, given that a distressed firm's problems often relate to its strategic positioning (Barker and Duhaime, 1997).

Consistent with the strategic literature regarding the efficacy of different management initiatives, recent going-concern research by Behn et al. (2001), Geiger and Rama (2003) and chapter 2 of this dissertation indicates that operating initiatives such as cost-cutting generally increase the likelihood that a going-concern opinion is issued, whereas strategic initiatives with a short-term impact on performance such as strategic alliances decrease the likelihood that a going-concern report is issued. In other words, auditors are likely to perceive the engagement in strategic initiatives that are likely to have a short-term impact as mitigating factors, whereas operating initiatives are likely to be perceived as additional going-concern risk factors. This leads to our first set of hypotheses:

HYPOTHESIS 1A: *For financially distressed companies, the implementation of operating turnaround initiatives has a negative direct effect on auditors' going-concern judgment.*

HYPOTHESIS 1B: *For financially distressed companies, the implementation of strategic turnaround initiatives that are likely to generate positive short-term cash flows has a positive direct effect on auditors' going-concern judgment.*

3.3.2 Indirect effect of management initiatives on going-concern judgment through memory for financial going-concern evidence

According to SAS No. 59, the auditor should evaluate conditions or events discovered during the engagement that raise questions about the appropriateness of the going-concern concept. However, the standard does not prescribe the execution of separate audit procedures solely to identify potential going-concern problems. The results of auditing procedures designed and performed to achieve other audit objectives should be sufficient for that purpose. This is consistent with the view of Asare (1992), who notes that the going-concern task typically is performed contemporaneously with other tasks. In addition, Rau and Moser (1999) argue that going-concern decisions are typically memory-based because auditors are unlikely to be able to simultaneously perform another audit task and process going-concern information. They argue that auditors rather store the going-concern information in long-term memory for subsequent retrieval when making a viability judgment.

Given that an auditor's going-concern judgment is likely to be based at least partially on information retrieved from memory, an interesting research question would be whether an auditor's memory for going-concern evidence is impacted by the firm's strategic performance. In other words, given that an audit assignment typically starts with a risk assessment, which under the business risk audit approach entails a thorough strategic analysis of the client, it is important to investigate whether this "top-down" processing of information influences memory for going-concern evidence and thus subsequent judgment.

In order to predict the influence of initial strategic viability judgments on the processing of subsequent audit evidence, we consider the results of prior audit research that focuses on the impact of initial hypotheses on subsequent information search and processing. A substantial part of these studies investigates the existence of confirmatory bias in information acquisition and evaluation.

One of the first studies to investigate the importance of initial hypotheses on subsequent information search was conducted by Kida (1984). She investigated experimentally whether auditors attend more to confirmatory evidence, disconfirmatory evidence, or equal amounts of both when testing a hypothesis. The results indicate that the hypothesis framing had some impact on the information acquisition process, although the confirmatory effect was less powerful than suggested in the psychological literature. Subsequent research by Trotman and Sng (1989) in a going-concern decision-making context found only weak support for the confirmatory bias as it was dominated by a preference for negative going-concern information. These findings were corroborated by other studies that focused on confirmatory bias in auditors' information search strategies (see, for example, Butt and Campbell, 1989; Anderson and Kida, 1994). In contrast, a more recent study by Brown, Peecher and Solomon (1999) indicated that auditors do exhibit confirmatory tendencies when their incentives reward efficiency instead of effectiveness.

In this study, our focus will be on confirmation/disconfirmation proneness in information *processing*, rather than in information acquisition. Early experimental research on this topic by Ashton and Ashton (1988) in simplified audit settings showed that auditors reacted more to evidence that disconfirmed their current beliefs. Tubbs and Messier (1990) tested auditors' confirmation proneness in more realistic content-rich audit settings. Their results reinforced the findings of Ashton and Ashton (1988). Consistent with these findings, a study by Asare (1992) that focused on auditors' evaluation of evidence in a going-concern decision-making context indicated that auditors are prone to recency effects but not to confirmation bias. However, a study on hypotheses generation in analytical procedures by Bedard and Biggs (1991) indicated that auditors exhibited confirmatory behavior in their evaluation of audit evidence. Similar results were found in a study by Church (1991) that focused on the relationship between commitment to a hypothesis and auditors' evaluation of evidence. McMillan and White (1993) explain these seemingly contradictory findings by noting that in the latter studies participants were allowed to generate their own expectations instead of being furnished with an initial anchor. Subsequent going-concern research by Tan (1995) confirmed that auditors with self-generated expectations paid significantly more attention to consistent facts than inconsistent facts, compared to auditors who were provided with an initial anchor. These findings are in line with the results of Church (1991), showing that auditors who were

strongly committed to their initial hypotheses attached more information to confirming evidence than auditors who were not strongly committed to their initial hypotheses.

These findings with respect to auditors' processing of confirming and disconfirming evidence are consistent with the Associative Network Model from social psychology literature. This model provides an explanation for the impact of "expectancy-driven" or "top-down" processing on memory and judgment. The Associative Network Model is based on a number of principles. First, expectancy-congruent information will be particularly well remembered because it is more strongly associated (by means of associative networks) with the target than is expectancy-incongruent information. Second, expectancy-incongruent information is not filtered or ignored, but may rather be extensively processed as it is thought about in relation to the target and in relation to the other information known about the target. The outcome of this "elaborative" processing of expectancy-incongruent information is that incongruent information is likely, at least in some cases, to be particularly well recalled, often even better than expectancy-congruent information (Stangor and McMillan, 1992). However, the latter effect is subject to several theoretical moderator variables. Higgins and Bargh (1987) suggested that it is stronger when people are initially forming impressions than when they are testing confidently held impressions. Meta-analysis confirmed this suggestion, showing that the inconsistency advantage in recall is diminished or even reversed when expectations are strong, the information to be processed is complex or processing time is limited.

When we apply this model to our research, we expect that the bias towards disconfirming evidence is mitigated because going-concern decision-making is complex in nature and auditors develop a relatively solid beginning anchor through the processing of client strategic information. Consequently, we expect that auditors will subsequently focus on expectancy-congruent information, rather than expectancy-incongruent information. This means that auditors will be likely to focus more on positive information when their client implements strategic turnaround initiatives that generate short-term cash inflows, and more on negative information when their client implements operating turnaround initiatives.

HYPOTHESIS 2A: *When the client implements operating turnaround initiatives, more negative financial going-concern information items will be recalled.*

HYPOTHESIS 2B: *When the client implements strategic turnaround initiatives that are likely to generate positive short-term cash flows, more positive financial going-concern information items will be recalled.*

3.3.3 The impact of auditor experience on attention for client strategic and operating information

Prior empirical auditing expertise research has indicated significant differences between experienced and inexperienced auditors with respect to knowledge, problem solving behavior and decision quality (Bédard and Chi, 1993). First of all, experts are able to perform more efficiently and effectively because they have more declarative knowledge. For example, prior research has shown that experts have superior knowledge of (1) different types and frequencies of financial statement errors (Libby and Frederick, 1990; Tubbs, 1992; Nelson, 1993), (2) internal controls (Frederick, 1991); and (3) relations between control weaknesses and errors (Frederick and Libby, 1986). In addition to having more knowledge, experienced auditors also have more developed knowledge structures than inexperienced auditors (see, for example, Choo and Trotman, 1991; Frederick, 1991; Tubbs, 1992; Christ, 1993; Frederick, Heiman-Hoffman and Libby, 1994; Vera-Muñoz, Kinney and Bonner, 2001). These differences in knowledge structures are particularly relevant to this study because they determine the information to be encoded and retrieved from memory. Prior auditing research with respect to the differences in knowledge structures between experts and novices suggests that experts organize their problem representations around the functional features or “deep structure” of a problem, whereas novices focus on the surface features of a problem (Bédard and Chi, 1993; Christ, 1993). For example, Libby and Frederick (1990) show that expert auditors’ knowledge of financial statement errors is organized around a well defined transaction-cycle dimension, while novices do not have this dimension to organize their knowledge of financial statement errors. Davis (1996) also found that experienced auditors apply a top-down approach to select relevant information and as such exhibit a holistic picture of the situation. In addition, the results of a study by Biggs, Mock and Watkins (1988) regarding the analytical review process indicated that there is a difference between managers and seniors in terms of the goals underlying the information acquisition process. The senior’s information acquisition was strictly oriented towards obtaining the information needed to

perform the task assigned. While this goal was also important to the managers, much of their information acquisition activity was directed at getting a thorough understanding of the client, the nature of its business, and any business problems it faced. Consistent with this finding, a study by Biggs et al. (1993) that focused on the going-concern decision, provided evidence that experienced auditors have extensive knowledge of their client's operations, industry, and world events that affected their client's financial problems. Causal reasoning based on event knowledge played a critical role in determining whether a financial problem was significant and whether client management plans would mitigate the problem.

Prior research of the effect of auditor experience on going-concern decision-making also indicated that the well-developed knowledge structures of experienced auditors help them to consider not only information that is typical for a company with going-concern problems, but also information that is atypical, such as mitigating going-concern evidence items (Choo and Trotman, 1991; Hoffman et al., 2003). This can be explained by the fact that experts' superior organization of knowledge results in a greater capacity to process relevant information. This increased processing capacity allows experts to attend more to atypical information that requires additional processing (Fiske, Kinder and Larter, 1983). In the same line of reasoning, Hoffman et al. (2003) argue that as repeated performance of the going-concern judgment leads to the routinization of basic aspects of the task (such as the evaluation of financial information), more processing capacity will be free for performing the more cognitively demanding parts of the task (i.e. attending to and integrating nonfinancial mitigating information. This will allow experienced auditors to search and process more information related to client turnaround initiatives, which leads to our third hypothesis:

HYPOTHESIS 3: *Client operating and strategic turnaround initiatives will have a greater impact on going-concern decision-making for experienced auditors*

3.4 METHOD

3.4.1 Experimental design

To test these hypotheses, the study employs a 3 x 2 design with strategic initiatives (OPERATING, STRATEGIC, CONTROL) and level of experience (HIGH, LOW) as two independent factors. Client strategic initiatives were manipulated by providing participants in the STRATEGIC and OPERATING conditions with a brief overview of current initiatives and realisations, reflecting respectively an operating or strategic turnaround approach. Participants in the CONTROL condition received no information with respect to current strategic initiatives. The second variable manipulated is auditor experience, where auditing students are considered to be novice auditors and audit managers and partners are considered to be experienced auditors.

The two dependent variables collected were: (1) participants' going-concern judgments and (2) cues recalled. We collected cues recalled as a measure of participants' attention to going-concern evidence (e.g. Choo and Trotman, 1991; Libby and Trotman, 1993; Tan, 1995; Phillips, 1999; Rau and Moser, 1999). We use the proportion of positive cues recalled (i.e. the number of positive cues recalled divided by the sum of positive and negative cues recalled) as a proxy for relative attention because it has the advantage of adjusting for any differences in the total number of positive and negative cues recalled across experimental conditions (Hoffman et al., 2003).

3.4.2 Materials and procedures

3.4.2.1 Case material

We developed a going-concern judgment case based on the 10-K filings of a financially distressed Canadian food retail company. The case reflected a company “at the margin”, one that could steer the participants toward either a positive or a negative going-concern decision. The case materials were designed in close collaboration with a Big 4 auditing partner, who reviewed the case for reality and provided pertinent advice.

Case materials were delivered through a web-based information system. Each participant received an email containing a web address and a unique registration code. The

participants were also provided with the opportunity to request a copy of the results of the study.

3.4.2.2 Experimental procedure

The experimental task consisted of six parts. More specifically, the participants were asked to: (1) read company information, (2) complete a demographic questionnaire, (3) perform a recall task, (4) make a going-concern judgment, (5) make a strategic viability assessment, and (6) complete a debriefing questionnaire. We made sure that the participants could not look ahead to subsequent parts or return to parts completed previously. This was accomplished by disabling for all web pages used in this experiment most of the navigation buttons and controls normally provided across the top of the screen by an Internet browser.

In the first phase of the experiment, participants were assigned to one of the three treatment conditions and were asked to assume the role of the newly appointed auditor of a large food retail company. They were asked to read the company information carefully because it would be used in subsequent judgment questions. The provided company information consisted of (1) company background and vision, (2) financial ratios for the previous and current year, (3) unaudited balance sheet and income statement for the current year, (4) audited balance sheet and income statement for the previous year, (5) actual and forecasted profit and cash flow, and (6) information regarding debt covenant compliance. In the STRATEGIC and OPERATING condition, participants received additional information indicating that the company engaged into strategic alliances with other companies (STRATEGIC) or implemented a cost cutting plan (OPERATING) in order to increase cash flow and restore earnings and sales growth (see appendix 3.1 for an overview of the information contained in the section “current strategic initiatives and realisations”). In both conditions, the case material indicated that the current management actions were expected to increase net income by 30 million dollar. The participants in the CONTROL condition did not receive any information with respect to current strategic initiatives. The responses of these participants provide a baseline against which the responses of the participants in the STRATEGIC and OPERATING condition can be compared.

In the second phase of the experiment, participants were asked to fill in a demographic questionnaire related to their auditing background. The participants were

asked to provide information with respect to their level of responsibility within the firm, the number of years of audit experience, the number of food retail clients audited in the past four years, and their industry specialisation. This questionnaire functioned as a short filler (distracter) task.

The third phase consisted of a recall task in which the participants were asked to list all the information they could remember about the company and the financial statements. After providing all recalled items, the participants were instructed to indicate for each recalled item whether it reflected positively, negatively, or neutral on company viability. We asked them to indicate their interpretation of the cues they recalled, because research by Moser (1992) has indicated that not the experimenter's classification influences participants' judgments, but rather the participant's interpretation of recalled information items.

In the fourth phase of the experiment, participants judged the probability that the company would continue as a going-concern. When participants performed their viability judgment, they were asked to indicate the probability judgment that the company would continue as a going-concern in the coming year on a scale from 0 to 100, with end points labelled "Definitely Will Not Continue as a Viable Operation," and "Definitely Will Continue as a Viable Operation" (e.g. Asare, 1992; Rau and Moser, 1999; Shelton, 1999; Arnold, Collier, Leech and Sutton, 2000; Philips, 2002; Blay, 2005). Additionally, the participants were asked to judge their confidence in the going-concern decision on a scale from 0 (not confident at all) to 100 (entirely confident).

In the fifth phase of the experiment, participants were asked to indicate the likelihood that the company would be able to execute its strategy successfully on a scale from 0 (definitely will not be successful) to 100 (definitely will be successful). They were also asked to indicate their confidence in the provided strategic viability assessment.

In the last phase of the experiment, participants were asked to complete a debriefing questionnaire, which assessed their experience in going-concern decision-making and the extent to which they consider strategic information when assessing a company's ability to continue as a going-concern⁸. The flow of tasks is described in table 3.1.

Appendix 3.2 lists time registration statistics for the reading of company information, the going-concern assessment and strategic viability assessment. We performed t-tests for differences in means (not tabulated), which indicated no significant differences in time spent on the different tasks between the STRATEGIC, OPERATING and CONTROL condition⁹. The tests of significant differences between experienced and novice auditors indicate that on average, experienced auditors allocated less time to reading the general company information ($t = 3.07$, $p = 0.00$), the financial ratio information ($t = 3.54$, $p = 0.00$), the strategic information ($t = 2.68$, $p = 0.01$) and the financial information ($t = 5.27$, $p = 0.00$). This is consistent with prior research, which indicates that experienced auditors perform more goal-oriented, directed evaluations of evidence, relative to novice auditors (see, for example, Anderson, 1988; Bédard and Chi, 1993; Biggs et al., 1993; Cuccia and McGill, 2000; Thibodeau, 2003). Furthermore, the analysis shows that experienced auditors allocated significantly more time to the assessment of the company's ability to continue as a going-concern ($t = 1.86$, $p = 0.06$), relative to novice auditors.

TABLE 3.1: FLOW OF TASKS

	STRATEGIC	OPERATING	CONTROL
Phase 1	Read company info: <ul style="list-style-type: none"> • Business and history • Industry information • Vision and operating strategy • Financial ratios • Current strategic initiatives and realisations (strategic alliances) • Financial company information 	Read company info: <ul style="list-style-type: none"> • Business and history • Industry information • Vision and operating strategy • Financial ratios • Current strategic initiatives and realisations (cost-cutting) • Financial company information 	Read company info: <ul style="list-style-type: none"> • Business and history • Industry information • Vision and operating strategy • Financial ratios • Financial company information
Phase 2	Demographic questions	Demographic questions	Demographic questions
Phase 3	Recall task	Recall task	Recall task
Phase 4	Going-concern judgment	Going-concern judgment	Going-concern judgment
Phase 5	Strategic assessment	Strategic assessment	Strategic assessment
Phase 6	Debriefing questions	Debriefing questions	Debriefing questions

⁸ The descriptive statistics with respect to the consideration of strategic information are not tabulated. On a scale from -3 (I consider strategic information to a very small extent) to +3 (I consider strategic information to a very large extent), the average rating was 1.38 for experienced auditors and 1.40 for novice auditors.

⁹ One exception is the reading of strategic information, which takes 0 seconds in the CONTROL condition

3.4.3 Subjects

Two groups of subjects participated in the experiment: experienced auditors and novice auditors. The experienced subjects were auditors at the manager/partner level and were recruited from Belgian Big 4 auditing firms. These subjects were selected on the basis of discussions with audit firm partners who indicated that they would have sufficient experience in going-concern decision-making to perform the task at hand. Of the 89 auditors that were contacted, 56 responded to all questions and assessments (response rate = 63 %). The novice subjects were 54 undergraduate accounting majors who had completed an auditing course at the Catholic University of Leuven, Belgium.

Seven observations were dropped from the sample because the participants appeared to have misunderstood the instructions. Another six observations were not included because the participants' recall assignments did not indicate any recall of financial information, which strongly suggests that they did not complete the experiment in a thorough manner. This resulted in a final sample of 50 experienced and 47 novice auditors.

Table 3.2 reports sample descriptive statistics with respect to audit experience and going-concern decision-making experience for the sample of experienced auditors, consisting of 19 partners and 31 managers. The statistics in table 1 indicate that, on average, the auditors had 13.4 years of audit experience, and audited one retail client in the past four years. Furthermore, ten percent of the auditors in the sample were specialized in auditing clients from the retail industry. With respect to going-concern decision-making experience, the auditors were on average involved in 11.39 going-concern decisions for financially distressed clients in the past four years. All of these demographic variables were compared between treatments and no significant differences were noted, indicating effectiveness in random assignment.

TABLE 3.2: MEAN NUMBER (STANDARD DEVIATION) OF YEARS OF EXPERIENCE AND GOING-CONCERN DECISION-MAKING EXPERIENCE

Management Initiatives	n	Years of audit experience	Retail clients audited in the last 4 years	Retail industry specialists	Going-concern judgments in the last 4 years
OPERATING	15	12.00 (7.38)	0.80 (1.01)	0.13 (0.35)	16.67 (24.68)
STRATEGIC	17	15.85 (2.32)	0.59 (1.12)	0.06 (0.24)	9.65 (6.09)
NO INFORMATION	18	12.19 (1.47)	1.50 (3.54)	0.11 (0.33)	8.39 (7.49)
TOTAL	50	13.38 (1.12)	0.98 (2.28)	0.10 (0.30)	11.39 (14.81)

3.5 RESULTS

3.5.1 Estimation of the overall effect of strategic and operating management initiatives on going-concern judgment

Before probing deeper into the direct and indirect effect of management initiatives on going-concern decision-making, we take a look at the total effect (direct and indirect) of management initiatives on going-concern judgment. Based on the findings from the archival literature on this topic, we expect to find that strategic initiatives are negatively associated with the likelihood that a going-concern opinion is issued, while operating turnaround initiatives are positively associated with the likelihood a going-concern opinion is issued (see, Behn et al.; 2001; Geiger and Rama, 2003; and chapter 2 of this dissertation).

In order to investigate this overall effect of strategic initiatives on going-concern judgment, we performed an analysis of the mean going-concern assessments across conditions and estimated a priori contrasts.

The results of the contrast analysis in table 3.3 reveal that the going-concern judgments in the STRATEGIC condition are significantly more positive than those in the CONTROL condition ($t = 1.63$, $p = 0.05$, one-tailed). This is consistent with the results from chapter 2, which indicate that strategic initiatives with a short-term impact on cash flow generally send a positive signal to the auditor and hence decrease the likelihood that

a going-concern opinion is issued. Conversely, we find no evidence of a negative effect of OPERATING initiatives on going-concern judgment ($t = 0.23$, $p = 0.42$, one-tailed).

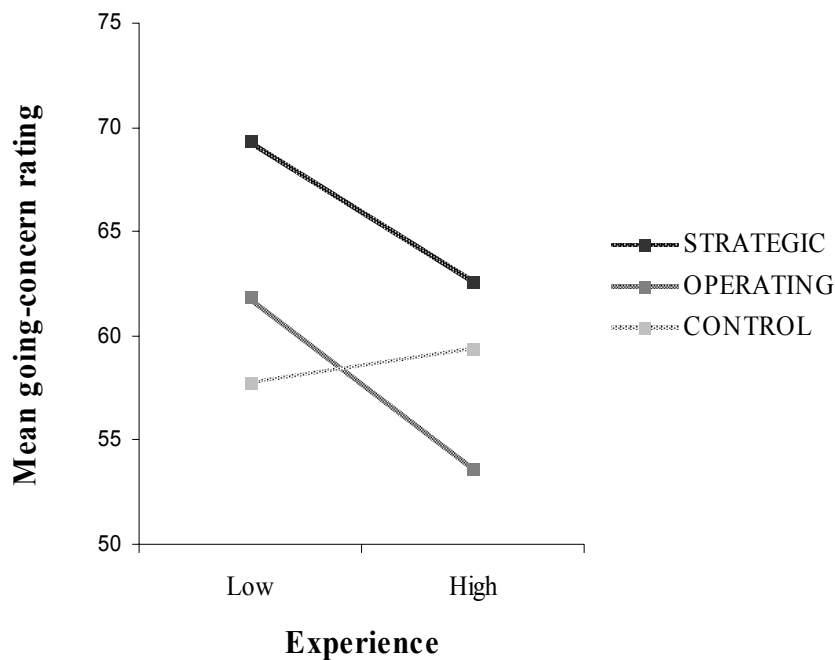
TABLE 3.3: CONTRAST ANALYSIS FOR GOING-CONCERN JUDGMENTS

Contrasts	Df	t-statistic	p-value*
STRATEGIC-CONTROL	94	1.63	0.05
OPERATING-CONTROL	94	0.23	0.42

* The theory predicts a directional result. Therefore, significance levels are one-tailed

With respect to the impact of experience on the consideration of strategic information (see hypothesis 3), the diagrammed mean going-concern assessments in figure 3.2 suggest a potentially differential impact of OPERATING initiatives on experienced and novice auditors' going-concern judgment. Although this effect is not significant ($F(1,91) = 0.74$, $p = 0.39$), the tendencies in figure 3.2 suggest the possibility that operating initiatives have a negative impact on experienced auditors' going-concern judgment, which is consistent with the archival literature regarding this topic (Geiger and Rama, 2003 and chapter 2 of this dissertation).

FIGURE 3.2: MEAN GOING-CONCERN JUDGMENTS OF EXPERIENCED AND NOVICE AUDITORS IN DIFFERENT CLIENT TURNAROUND CONDITIONS



3.5.2 Estimation of the direct and indirect effect of strategic and operating turnaround initiatives on going-concern judgment

In this section we decompose the overall effect of management initiatives on going-concern judgment into a direct effect and an indirect effect through recall of financial evidence. With respect to the direct effect, the first set of hypotheses (H1a and H1b) proposes that the implementation of operating turnaround initiatives has a negative impact on auditors' going-concern judgment, whereas the implementation of strategic turnaround initiatives has a positive impact on auditors' going-concern judgment.

With respect to the indirect effect through recall of financial evidence, hypothesis 2a and 2b propose that strategic management initiatives have a positive impact on auditors' proportional recall (i.e. the number of positive financial cues recalled, divided by the sum of positive and negative financial cues recalled), whereas operating management initiatives have a negative impact on auditors' proportional recall.

In order to estimate the causal path outlined in figure 3.1, we estimate (1) the effect of management initiatives on the proportional recall of financial evidence, and (2) the impact of management initiatives and proportional recall on going-concern judgment.

3.5.2.1 Effect of turnaround initiatives on proportional recall

The impact of management initiatives on proportional recall is estimated using an ANOVA model with proportional recall (RECALL) as the dependent variable and experience (EX) and management initiatives (MI) as independent factors. Tables 3.4 and 3.5 report mean proportional recall and going-concern judgments for experienced and novice auditors.

TABLE 3.4: MEAN NUMBER (STANDARD DEVIATION) OF ITEMS RECALLED, MEMORY MEASURES AND GOING-CONCERN JUDGMENTS FOR EXPERIENCED AUDITORS

Management Initiatives	n	Positive Non-financial Items Recalled	Negative Non-financial Items Recalled	Positive Financial Items Recalled	Negative Financial Items Recalled	Memory Measures	Going-Concern Judgments
OPERATING	15	0.87 (0.99)	0.60 (0.91)	0.47 (0.64)	3.33 (1.59)	0.17 (0.28)	53.67 (19.50)
STRATEGIC	17	0.47 (0.80)	0.41 (0.62)	0.88 (0.78)	3.41 (3.40)	0.27 (0.32)	62.65 (20.01)
CONTROL	18	0.00 (0.00)	0.39 (0.61)	2.56 (2.45)	2.17 (1.89)	0.50 (0.38)	59.39 (19.95)
TOTAL	50	0.42 (0.78)	0.46 (0.71)	1.36 (1.80)	2.94 (2.04)	0.32 (0.35)	58.78 (19.77)

TABLE 3.5: MEAN NUMBER (STANDARD DEVIATION) OF ITEMS RECALLED, MEMORY MEASURES AND GOING-CONCERN JUDGMENTS FOR INEXPERIENCED AUDITORS

Management Initiatives	n	Positive Non-financial Items Recalled	Negative Non-financial Items Recalled	Positive Financial Items Recalled	Negative Financial Items Recalled	Memory Measures	Going-Concern Judgments
OPERATING	13	1.15 (1.41)	0.69 (1.03)	1.23 (1.24)	2.46 (2.07)	0.34 (0.36)	61.92 (22.78)
STRATEGIC	17	0.88 (0.93)	0.24 (0.56)	1.18 (1.01)	3.12 (1.65)	0.30 (0.27)	69.41 (13.21)
CONTROL	17	0.35 (0.79)	0.41 (0.62)	0.82 (0.95)	3.12 (2.57)	0.24 (0.30)	57.76 (18.21)
TOTAL	47	0.77 (1.07)	0.43 (0.74)	1.06 (1.05)	2.94 (2.11)	0.29 (0.31)	63.13 (18.36)

The estimation results of the ANOVA in table 3.6 indicate that the impact of management initiatives on the proportional recall of financial evidence depends on the level of experience of the auditor ($F(2,94)=3.95$, $p = 0.02$). Additional analysis (not tabulated) indicates that for novice auditors, proportional recall in the CONTROL condition was not statistically different from proportional recall in the OPERATING condition ($F(1,91) = 0.91$, $p = 0.37$) or STRATEGIC condition ($F(1,91) = 0.37$, $p = 0.54$). For experienced auditors, however, proportional recall of positive financial information in the CONTROL condition was significantly higher than in the OPERATING condition ($F(1,91) = 8.95$, $p = 0.00$) and STRATEGIC condition ($F(1,91) = 4.40$, $p = 0.04$). This indicates that the indirect effect of management turnaround initiatives on the going-concern decision is likely to be negative for experienced auditors.

One possible explanation for this finding is that experienced auditors may have performed an evaluation of the adequacy of implemented operating and strategic management initiatives in light of the financial problems of the firm. This may have resulted in a more detailed analysis of the financial problems of the firm, which in turn influenced the identification and recall of financial going-concern risk items.

Another potential explanation might be that auditors, who were informed of the fact that the client was in the process of implementing management initiatives to restore company performance, were more sensitive to financial distress signals when evaluating client financial information. This is in line with recent research by Earley (2002) and Ballou et al. (2004), showing that differences in initial client expectations might impact the cognitive processing of subsequent information.

TABLE 3.6: ANALYSIS OF VARIANCE FOR PROPORTIONAL RECALL

Source of Variation	Df	F-value	P-value
Main Effects			
Experience (EX)	1	0.09	0.76
Management initiatives (MI)	2	1.08	0.34
Interaction			
EX \times MI	2	3.95	0.02

p-values are from two-sided tests

3.5.2.2 *Effect of turnaround initiatives and proportional recall on going-concern judgment*

Second, we assess the effect of both proportional recall and management initiatives on going-concern judgment by performing an ANCOVA with going-concern judgment as dependent variable, and experience, management initiatives and recall as independent variables. The level of significance of the recall and management initiatives measures will indicate whether management initiatives impact going-concern judgment directly, indirectly, or both. The results of the ANCOVA in table 3.7 indicate that going-concern judgments are primarily based on auditors' recall of financial information ($F(1,90) = 10.24$, $p = 0.00$) and to a lesser extent on strategic information ($F(2,90) = 2.39$, $p = 0.10$).

TABLE 3.7: ANALYSIS OF VARIANCE FOR GOING-CONCERN JUDGMENTS

Source of Variation	Df	F-value	P-value
Main Effects			
Experience (EX)	1	1.72	0.19
Management initiatives (MI)	2	2.39	0.10
Interaction			
EX \times MI	2	0.05	0.95
Covariate			
RECALL	2	10.24	0.00

p-values are from two-sided tests

Additional analysis (not tabulated) indicates that the significance of the management initiatives measure is attributable to the positive effect of strategic management initiatives on going-concern judgement ($F(1,90) = 4.19$, $p = 0.04$) and not to the negative effect of operating initiatives ($F(1,90) = 0.08$, $p = 0.77$). This means that our findings support hypothesis 1b, which predicts that strategic initiatives have a positive direct effect on going-concern judgment. Our findings, however, do not support hypothesis 1a, which states that operating initiatives have a negative direct effect on going-concern decision-making. With respect to the indirect effect of management initiatives on going-concern judgment, we predicted that the implementation of operating

initiatives would have a negative effect on proportional recall (hypothesis 2a), while strategic initiatives which are likely to generate a short-term cash-flow effect would have a positive effect on proportional recall (hypothesis 2b). Our analyses, however, indicate that the implementation of both types of management turnaround initiatives have a negative indirect effect on auditor's going-concern judgment through a significantly lower proportional recall of positive going-concern evidence items. This result provides support for hypothesis 2a, but contradicts hypothesis 2b. Finally, hypothesis 3 predicted that management turnaround initiatives would have a greater impact on going-concern decision-making for experienced auditors. Our results indicate that the indirect effect of management turnaround initiatives is indeed more pervasive for experienced auditors, although the direct effect is not stronger for experienced auditors.

In sum, the results of this study are supportive of the finding in chapter 2 that strategic initiatives that are likely to generate short-term positive cash flows decrease the likelihood of receiving a going-concern opinion. This is consistent with evidence from the strategic literature indicating that strategic networks often have positive effects on corporate performance (see, for example, Powell, Koput and Smith-Doerr, 1996; Stuart, 2000). Moreover, we find that the negative impact of operating initiatives on auditors' going-concern judgment as reported in Geiger and Rama (2003) and chapter 2 of this dissertation is likely to be due to the negative indirect effect of these initiatives on going-concern decision-making. In particular, the results suggest that the presence of management turnaround initiatives increases experienced auditors' recall of negative financial information and decreases auditors' recall of positive information.

3.5.3 Supplementary analysis

3.5.3.1 Industry experience and auditors' evaluation of turnaround strategies

In chapter 4 of this dissertation, we report that the effect of management initiatives on the going-concern decision for soon-to-be bankrupt companies is different for industry specialists, compared to non-specialist auditors (see *infra*). More specifically, the results of this chapter indicate that the likelihood of Type II errors (i.e. issuing a clean opinion for a client that subsequently goes bankrupt) is lower if a soon-to-be bankrupt company that implements an operating turnaround approach is audited by an industry specialist.

To investigate the impact of industry experience on auditors' evaluation of turnaround initiatives, we reformed our analysis for the subsample of experienced auditors using the number of retail clients audited in the last four years (RETAILEXP) as a measure of industry experience. We performed this analysis using regression analysis instead of ANOVA, because ANOVA does not allow for the estimation of interaction terms when one of the interaction variables is continuous. We defined the variables OPERATING and STRATEGIC as dummy variables that are coded one if the company implemented operating or strategic turnaround initiatives, respectively. Consistent with the previous analysis, we estimated (1) the effect of turnaround initiatives (OPERATING, STRATEGIC) on proportional recall (RECALL), and (2) the effect of both turnaround initiatives (OPERATING, STRATEGIC) and proportional recall (RECALL) on going-concern judgment (GC). In addition, both regression models tested interaction effects between management turnaround initiatives and retail experience.

The results from Model 1 in table 3.8 indicate that the participants in the OPERATING condition had a significantly lower proportional recall of positive financial information, compared to the STRATEGIC and CONTROL condition. The estimation results from model 2 indicate that proportional recall is significantly associated with the going-concern decision, which is consistent with our previous results.

TABLE 3.8: THE EFFECT OF INDUSTRY EXPERIENCE ON AUDITORS' EVALUATION OF TURNAROUND STRATEGIES

Variables	Model 1 Dep. Var. = RECALL			Model 2 Dep. Var. = GC		
	coeff.	t-ratio	p-value	coeff.	t-ratio	p-value
C	0.47	4.79	0.0000	55.33	9.313	0.0000
OPERATING	-0.37	-3.23	0.0023	-5.85	-0.65	0.5166
STRATEGIC	-0.17	-1.39	0.1706	-1.06	-0.15	0.8817
RETAILEXP	0.02	1.31	0.1968	-2.67	-2.90	0.0058
OPERATING *RETAILEXP	0.06	0.64	0.5241	4.55	1.01	0.3195
STRATEGIC *RETAILEXP	-0.06	-0.81	0.4235	9.41	3.14	0.0031
RECALL				16.06	1.93	0.0596
Adjusted R ²			0.11			0.10

t-statistics are calculated using White's correction for heteroskedasticity

p-values are from two-sided tests

The results further indicate that, on average, going-concern ratings are significantly lower for auditors with more retail experience. Interestingly, the results also indicate that the impact of STRATEGIC initiatives on going-concern judgment is influenced by the

auditor's retail experience. More specifically, going-concern judgments for clients in the STRATEGIC condition are more positive when the auditor has more retail experience. This means that for experienced auditors, the positive effect of STRATEGIC initiatives on going-concern decision-making is especially prevalent for auditors with extensive retail experience.

3.5.3.2 Years of audit experience and auditors' evaluation of turnaround strategies

In order to refine our analysis with respect to the effect of auditor experience on the evaluation of strategic and operating management plans in a going-concern decision-making context, we reperformed our analysis for the subsample of experienced auditors using years of auditor experience (AUDITEXP) as an experience measure. Note further that the analysis is conducted in the same manner as the previous supplemental analysis. Model 1 estimates the effect of turnaround initiatives (OPERATING, STRATEGIC) on proportional recall (RECALL), whereas model 2 assesses the effect of both turnaround initiatives (OPERATING, STRATEGIC) and proportional recall (RECALL) on going-concern judgment (GC).

The results in table 3.9 indicate that, in contrast to the previous analyses, management turnaround initiatives have no indirect effect on auditors' going-concern judgment. Although the implementation of OPERATING initiatives has a significantly negative impact on proportional recall, there is no significant association between proportional recall and the auditor's going-concern judgment. With respect to the direct effect of management turnaround initiatives on going-concern judgment, the results suggest that the implementation of operating turnaround initiatives has a significantly negative impact on the auditor's going-concern opinion. The results furthermore suggest that this effect is less pronounced for more experienced auditors. Finally, the analysis indicates that the implementation of strategic initiatives is positively valued by more experienced auditors, although their going-concern judgment is, on average, less positive than the going-concern judgment of less experienced auditors.

TABLE 3.9: THE EFFECT OF YEARS OF AUDIT EXPERIENCE ON AUDITORS' EVALUATION OF TURNAROUND STRATEGIES

Variables	Model 1 Dep. Var. = RECALL			Model 2 Dep. Var. = GC		
	coeff.	t-ratio	p-value	coeff.	t-ratio	p-value
C	0.53	2.77	0.01	80.52	8.44	0.00
OPERATING	-0.40	-1.76	0.09	-38.85	-3.11	0.00
STRATEGIC	-0.42	-1.65	0.11	-17.84	-1.19	0.24
AUDITEXP	-0.00	-0.12	0.90	-2.26	-3.59	0.00
OPERATING *AUDITEXP	0.01	0.30	0.76	3.08	3.90	0.00
STRATEGIC *AUDITEXP	0.01	0.70	0.49	2.03	2.29	0.03
RECALL				12.70	1.57	0.12
Adjusted R ²			0.09			0.19

t-statistics are calculated using White's correction for heteroskedasticity

p-values are from two-sided tests

3.6 CONCLUSIONS

In this study, we extend prior archival research that examines the relationship between operating and strategic management plans and the auditor's going-concern decision. Recent studies on this topic (Behn et al., 2001; Geiger and Rama, 2003; and chapter 2 of this dissertation) indicate that operating management actions such as cost-cutting and strategic initiatives with a short-term impact such as cooperative agreements with other firms have a significant impact on going-concern decision-making. We add to this body of research by investigating whether those management initiatives impact going-concern decision-making *directly* or whether management initiatives affect going-concern judgment *indirectly* through memory for financial evidence.

In addition, we consider the impact of auditing experience on the consideration of strategic and operating management initiatives in the going-concern decision process. This is motivated by prior research which indicates that experienced auditors attend more to mitigating going-concern information and generally acquire a more thorough understanding of the client, the nature of its business etc. Based on these findings, we argue that experienced auditors may attach more importance to management turnaround initiatives in going-concern decision-making, relative to novice auditors.

Consistent with the results in chapter 2, our findings indicate that strategic management initiatives with a short-term impact on cash flow have an overall positive

impact on going-concern judgment. This finding provides additional evidence of the auditor's perception of this type of turnaround initiative as a mitigating factor with respect to a company's financial difficulties.

When we decomposed the overall effect of management initiatives on going-concern judgment into a direct effect and an indirect effect through recall of financial evidence, the results reveal that (a) strategic initiatives have a positive *direct* effect and (b) strategic and operating initiatives both have a negative *indirect* effect for the group of experienced auditors. The latter (indirect) effect can be explained by the fact that experienced auditors may have evaluated the adequacy of current management initiatives in light of the financial problems of the firm. This may have caused them to focus more on financial distress signals than auditors in the control condition, resulting in increased recall of financial going-concern risk items. An alternative explanation is that auditors who were informed of the fact that the client attempted to restore profitability through the implementation of operating or strategic management initiatives, were more sensitive to subsequent financial evidence indicating financial distress. Stated differently, it is possible that experienced auditors perceived this as an "early warning signal" that the client might be in financial distress, which caused auditors to focus more on subsequent financial distress indicators. The presence of this negative indirect effect of management turnaround initiatives on auditors' going-concern judgment might provide an explanation for our finding in chapter 2 with respect to the negative impact of operating initiatives on the auditor's going-concern decision.

This study is subject to a number of limitations. The first limitation that applies relates to the number of participants ($n = 97$) in this study. The small sample size of this study is largely due to the fact we required half of the participant group to be audit partners or managers.

A second limitation is that we included auditing students as novice auditors. Although these students are familiar with the concept of going-concern decision-making, it is very well possible that the absence of audit experience has had an impact on the results of this study. This issue might be addressed in future research by including not only auditing students and audit partners and managers, but also audit seniors in the subject pool.

Third, this study considers only the impact of cost-cutting initiatives and strategic alliances on going-concern judgment. As the results of the previous chapter suggest that alternative turnaround initiatives such as increased marketing efforts or the introduction of new products are also likely to have a significant impact on the going-concern decision, it would be interesting to analyze the impact of a variety of turnaround initiatives on the going-concern decision-making process.

A final suggestion for future research relates to the impact of strategic and operating information on the information *acquisition* process. Whereas this study has focused mainly on the *processing* of financial and non-financial information, future research might investigate the acquisition of financial and non-financial information in a going-concern decision context for experienced and inexperienced auditors.

CHAPTER 4

THE IMPACT OF AUDITOR INDUSTRY SPECIALISATION, AUDIT METHODOLOGY AND MANAGEMENT INITIATIVES ON REPORTING ACCURACY

ABSTRACT

This study contributes to the literature on audit reporting errors by providing evidence on the association between auditor industry specialization, audit methodology and the likelihood of Type II reporting errors (i.e. issuing a clean opinion for a client that subsequently goes bankrupt). In addition, we investigate whether industry specialisation or the implementation of the business risk methodology provides auditors with a comparative advantage in judging the adequacy and feasibility of operating and strategic management plans to mitigate financial distress.

The results of this study indicate that the likelihood of Type II errors is higher for clients audited by business risk auditors who are not industry specialists. Our findings further suggest that this effect is likely to be due to business risk auditors' evaluation of their client's operating turnaround initiatives. Furthermore, our findings show that Type II reporting errors are less likely to occur if a client implementing an operating turnaround approach is audited by a specialist auditor. Together, the results of this study suggest that an analysis of client strategy *per se* may not reduce the rate of Type II errors, unless the auditor has adequate industry experience to judge the adequacy of client operating turnaround initiatives.

4.1 INTRODUCTION

As discussed in the previous chapters, auditors are held responsible for evaluating their client's going-concern status on every audit engagement. In particular, the auditor has to consider whether standard audit procedures identify conditions and events that indicate substantial doubt about the client's ability to stay in business during the next twelve months. Over the years, the auditing profession has repeatedly been criticized for not providing warning signals for impending client bankruptcy (Raghunandan and Rama, 1995; Geiger and Raghunandan, 2002). Moreover, regulators and users often view bankruptcies without a prior going-concern report as audit reporting failures (McKeown, Mutchler and Hopwood, 1991; Chen and Church, 1992; Geiger and Raghunandan, 2002). The frequency of audit reporting errors has been extensively documented in prior audit reporting research, indicating that the proportion of bankrupt companies that receive a going-concern modified audit opinion in the year immediately preceding bankruptcy is generally lower than 50 percent (Chen and Church, 1992; Raghunandan and Rama, 1995; Geiger and Raghunandan, 2002).

Prior research that investigated the causes of audit reporting errors focused on a variety of auditor- and client-related factors such as auditor size, auditor tenure, the probability of bankruptcy, payments and covenant defaults, bankruptcy lag, industry sector etc. (see, for example, McKeown et al., 1991; Mutchler, Hopwood and McKeown, 1997; Lennox, 1999a and 1999b). We contribute to this line of research by investigating the impact of different auditor traits on reporting accuracy. More specifically, we investigate the effect of enhanced industry knowledge or a business risk focus on the incidence of Type II reporting errors (i.e. issuing a clean opinion for a client that subsequently goes bankrupt). In addition, we investigate the comparative advantage of industry specialists and business risk auditors in judging the adequacy of their client's initiatives to mitigate adverse conditions. The investigation of these research issues is motivated by significant changes in the last decade with respect to the structure and methodology of large audit firms.

More specifically, in the early 1990s, large accounting firms started to structure their business around industry sectors and actively began to market their industry specialist knowledge (Casterella, Francis, Lewis and Walker, 2004). In the same time period, audit firms developed a new audit methodology with a business risk focus, which

greatly emphasized auditors' knowledge of the client's business and industry (e.g. Bell, Marrs, Solomon and Thomas, 1997; Lemon, Tatum and Turley, 2000; Knechel, 2001; Bell, Peecher and Solomon, 2005). With respect to the impact of these changes in the auditing landscape on auditor reporting accuracy, we note that the association between industry specialisation and audit methodology on the one hand and the occurrence of Type II errors on the other has never been investigated, although the relationship between industry specialisation and audit quality received ample attention in the audit literature (see, for example, O'Keefe, King and Gaver, 1994; Owoso, Messier and Lynch, 2002; Balsam, Krishnan and Yang, 2003; Low, 2004).

Based on the findings from this literature, we hypothesize that the likelihood of type II reporting errors is generally lower for clients that are audited by industry specialists. In addition, we argue that industry specialists are better able to judge the adequacy and feasibility of management turnaround initiatives, relative to non-specialist auditors. With respect to the relationship between audit methodology and audit reporting accuracy, we formulate two competing hypotheses stating that the likelihood of audit reporting errors is lower (higher) for auditors adopting the business risk methodology. Moreover, we expect that the effect of management turnaround initiatives on the likelihood of type II reporting errors will be different for business risk auditors, relative to non-business risk auditors.

Based on a sample of 101 US companies that went bankrupt in the years 1998-2001, we find that the likelihood of type II reporting errors is *higher* when a company is audited by a business risk auditor who is not an industry specialist. Furthermore, our findings suggest that this effect is likely to be due to business risk auditors' evaluation of operating turnaround initiatives, providing evidence of a significant relationship between a business risk auditor's evaluation of turnaround initiatives and audit reporting accuracy. In contrast, our analysis of the relationship between industry specialization, management turnaround initiatives and audit reporting accuracy shows that the likelihood of Type II reporting errors is *lower* when a client that implements operating initiatives is audited by an industry specialist, which confirms our expectations.

The remainder of this chapter is organized as follows. In section 4.2, we provide an overview of the existing literature with respect to auditor reporting errors and auditor industry specialisation. In section 4.3, we motivate our hypotheses. Section 4.4 is devoted to the development of our research methodology. In section 4.5, we outline our sample

selection procedure and section 4.6 provides a discussion of the results of our analyses. We conclude in section 4.7.

4.2 LITERATURE REVIEW

4.2.1 Audit reporting accuracy

With respect to research regarding audit reporting errors, different classes of variables have been proposed and tested in order to explain the occurrence of Type II errors in a going-concern context. Early research by McKeown, Mutchler, and Hopwood (1991) investigated why auditors often fail to modify the opinions of soon-to-be-bankrupt companies, and found that the likelihood of Type II reporting errors is larger when the probability of bankruptcy is lower, when the reporting lag is shorter, and when the client is larger. In a later study, Mutchler, Hopwood and McKeown (1997) extended this research by testing the auditor's consideration of contrary information and mitigating factors in a going-concern decision context using a sample of 208 soon-to-be bankrupt US companies. Their results indicate that extreme negative news items reported before the audit-report date significantly increases the likelihood of receiving a going-concern audit opinion.

Lennox (1999a) compared bankruptcy and audit reporting models for a sample of 976 UK companies in order to help explain why audit reports were not accurate or informative signals of bankruptcy. The results indicate that the economic cycle and industry sector were important predictors of bankruptcy, although they were not significant in the audit reporting model. Second, the going-concern models showed very strong persistence in audit reporting, i.e. auditors were reluctant to give first-time qualifications or to give clean opinions following qualified reports.

In a second study, Lennox (1999b) investigated the relationship between auditor accuracy and auditor size for a sample of 976 publicly quoted UK companies. Using a bankruptcy model to control for differences in client characteristics, this study indicates that both Type I and Type II errors are smaller for large audit firms compared to small audit firms.

Hermanson, Hermanson and Carcello (1996) conducted an exploratory study of eight multinational audit failures (i.e. multinational client bankruptcy shortly after an

unmodified audit opinion) in order to examine the role of multinational risk factors such as foreign currency issues, international political and economic risks, greater information asymmetry and greater complexity. The results of their study suggest that multinational auditing is not inherently different from domestic auditing, which implies that multinational risk factors do not play a major role in any of the audit failures.

Recent research by Casterella, Lewis and Walker (2000) examined Type II reporting errors for a sample of 100 US companies by developing an alternative model taking into account the resolution of the bankruptcy filing. Their model extends prior research by including a bankruptcy resolution variable and an auditor/client relationship variable that proxies in part for the auditor's loss function. Unlike prior opinion prediction studies, they use a simultaneous equations method that recognizes the interdependence of the auditor's opinion decision and the ultimate outcome of the soon-to-be bankrupt company. Their results show that auditors do not seem to be able to predict bankruptcy filing nor resolutions. More specifically, auditors fail to modify the opinion when there seems to be more uncertainty about the financial prospects of the company in question. Hence unmodified opinions are more likely when companies have higher Z-scores and are not in debt default, when the audit report date is closer to year-end, and when there is a longer delay between the report date and the filing for bankruptcy. Moreover, the data are not consistent with the notion that auditors are more likely to issue an unmodified opinion when there is a higher probability of reorganization. With respect to economic incentives to avoid or delay the issuance of a modified opinion, the results indicate that auditors are less likely to modify the opinion for new clients or for clients that the auditor has for a long time.

Consistent with the results of Casterella et al. (2000) with respect to the impact of auditor tenure on Type II errors, Geiger and Raghunandan (2002) found for a sample of 117 US companies entering into bankruptcy during the period 1996-1998 that there were significantly more audit reporting errors in the earlier years of the auditor/client relationship. In addition, recent research by Knechel and Vanstraelen (2004) shows for a sample of 688 Belgian companies that Type I error rates are reduced in long tenure situations, whereas Type II errors are no higher. They also find that the results from previous research regarding the impact of auditor tenure on audit failure may be due to failure to control for firm age, implying a survivorship bias.

Casterella, Knechel and Walker (2004) went one step further and developed an empirical model to predict various types of audit failures (Type II reporting errors, SEC Enforcement Actions, and litigation against auditors) based on observed attributes of failures in short and long tenure situations. Based on a sample of 174 US companies, their results suggest that audit failures are more likely due to incentives for auditor bias in long tenure situations and are more likely due to undiscovered fraud in short tenure situations.

Prior research has also investigated the impact of changes in legislation, reporting requirements and/or the auditing environment on auditor reporting behaviour. More specifically, Carcello, Hermanson and Huss (1995) investigated the impact of the issuance of SAS No. 34 and SAS No. 59 on the propensity of Big 8/6 firms to issue going-concern modified opinions. The analysis was based on a sample of 446 bankrupt US companies and provided evidence of an increase in firms' propensity to modify bankruptcy-related opinions after the issuance of SAS No. 34, but not after the issuance of SAS No. 59. In contrast, Raghunandan and Rama (1995) found for a sample of 362 non-bankrupt (but financially distressed) US companies and 175 bankrupt US companies that after SAS No. 59 became effective, auditors were more likely to issue going-concern modified opinions for financially stressed non-bankrupt companies and for bankrupt companies prior to failure. A more recent study of Geiger and Raghunandan (2001) examined the potential impact of the Private Securities Reform Act (enacted as law in 1995) on auditor reporting by examining audit reports for 383 US bankrupt companies. This research was motivated by the fact that the Reform Act reduces the costs associated with litigation against auditors. The results indicate that auditors were less likely to issue going-concern modified audit reports for soon-to-be bankrupt companies after the Reform Act, thereby increasing the incidence of Type II errors. Geiger, Raghunandan and Rama (2005) investigated whether auditors became more conservative in their reporting after December 2001, as a result of a series of high-profile corporate failures. Based on the analysis of 226 bankrupt companies, they find evidence of a decrease in Type II reporting errors in the post-December 2001 period.

4.2.2 Industry specialisation

A growing body of research investigates the effect of auditor industry specialisation on the market for audit services and audit quality. Prior research with

respect to the impact of industry specialisation on the market for audit services has mainly focused on the relationship between industry specialisation and the pricing of audit services. Craswell, Francis and Taylor (1995) estimated audit fee premia for industry specialist Big 8 auditors for a sample of 1484 Australian publicly listed companies. The results of their study indicated that industry specialist Big 8 auditors earn a 34% premium over nonspecialist Big 8 auditors. Recent research by Ferguson and Stokes (2002) focused on the relationship between brand name, industry specialisation and leadership audit pricing in the wake of the mergers that created the Big 6 and Big 5 accounting firms. This study does not find strong support for the presence of industry specialist premiums in the postmerger years and indicates that earlier findings of national market industry specialist premiums (e.g. Craswell et al., 1995) should be interpreted with caution. In a subsequent study, Ferguson, Francis and Stokes (2003) test whether the audit market prices an auditor's firm-wide industry expertise, or whether the audit market only prices office-level expertise in those specific cities where the auditor is the industry leader. The overall findings of this study are supportive of the market pricing office-level industry leadership in city-specific audit markets. The importance of office-level industry leadership is also emphasized in a more recent study by Francis, Reichelt and Wang (2005), which was conducted in the US audit market. Casterella, Francis, Lewis and Walker (2004) investigated the relationship between industry specialisation, client bargaining power and audit pricing using Porter's (1985) analysis of a competitive strategy. The results of this study are consistent with a differentiation premium for industry specialisation, but only for smaller clients having low bargaining power.

The fact that industry specialists earn higher audit fees suggests that they deliver higher audit quality. Existing research with respect to the impact of industry specialisation on auditors' judgment and decision-making seems to be supportive of industry knowledge leading to increased auditor efficiency and effectiveness. For example, O'Keefe et al. (1994) report that industry specialisation is associated with fewer violations of GAAS reporting standards. Recent research by Owoso et al. (2002) shows that auditors working within their industry specialisation are more effective at detecting errors in staff work papers during the audit review process. Balsam et al. (2003) and Krishnan (2003) examined the association between earnings quality and industry specialisation and found evidence of specialist auditors reducing earnings management by their clients. More

recently, a study by Carcello and Nagy (2004) indicates that clients that are audited by industry specialists experience less financial statement fraud. In addition, Dunn and Mayhew (2004) provide evidence of industry specialist audit firms assisting their clients in enhancing corporate disclosure.

With respect to the link between industry specialisation and knowledge, research by Wright and Wright (1997) provides evidence of industry specialists increased ability to generate alternative hypotheses when identifying accounting errors. In addition, Solomon, Shields, and Whittington (1999) examined industry specialists' knowledge of error and nonerror explanations for unexpected ratio fluctuations and found that industry specialists have more knowledge of non-error explanations.

4.3 HYPOTHESES DEVELOPMENT

Prior research on auditor reporting has documented differences in audit quality that can be attributed to different classes or groups of auditors. Francis and Krishnan (1999) show that Big 6 auditors are more likely to issue modified audit reports for high-accrual firms and a study by Lennox (1999b) suggests that Big 4 auditors issue more accurate audit reports than non-Big 4 firms. Weber and Willenborg (2003) find that the pre-IPO opinions of larger accounting firms are more predictive of post-IPO negative stock delistings than smaller accounting firms. Moreover, Gaeremynck and Willekens (2003) find in a Belgian context that when financial difficulties are less apparent, as is the case for firms that voluntarily decide to liquidate, Big 6 auditors are more likely to issue a non-clean audit opinion than non-Big 6 auditors.

In this chapter, we contribute to research focusing on the quality of auditor reporting by investigating the impact of industry specialisation and audit methodology on the likelihood of Type II errors. As such, we move beyond the Big N/non-Big N dichotomy as an indication of audit quality and investigate which auditor traits and audit methods are beneficial to audit reporting accuracy. More specifically, we investigate whether enhanced industry knowledge or an increased focus on business risk decreases the incidence of Type II reporting errors. In addition, we investigate the comparative advantage of industry specialists and business risk auditors in judging the adequacy of mitigating management actions implemented by financially distressed companies.

4.3.1 Auditor industry specialisation and reporting accuracy

Prior research has shown that auditor industry specialization significantly contributes to audit quality in the form of fewer violations of GAAS reporting standards (O’Keefe et al., 1994), reduced earnings management (Balsam et al., 2003; Krishnan, 2003), reduced financial statement fraud (Carcello and Nagy, 2004) and enhanced corporate disclosure (Dunn and Mayhew, 2004). In addition, research on the merits of auditors’ industry-specific experience suggests that auditors develop more extensive knowledge of the industry in which they specialize. Krishnan (2003) suggests that specialist auditors are likely to develop databases detailing industry-specific best practices, industry-specific risks and errors, and unusual transactions, all of which serve to enhance overall audit effectiveness. In line with this reasoning, the results of a study by Low (2004) suggest that auditors’ knowledge of their client’s industry improves the quality of their audit risk assessments. Low (2004) further argues that one of the comparative advantages of industry specialist auditors is that their enhanced knowledge of the client’s industry enables them to benchmark the client’s performance against its industry. It is quite intuitive that in a going-concern decision context, this type of knowledge is particularly useful to assess future client viability and could potentially enhance a specialist auditor’s reporting decision quality. Hence, we state our first hypothesis:

HYPOTHESIS 1: *The likelihood of Type II reporting errors is lower (ceteris paribus) for industry specialist auditors.*

4.3.2 Audit methodology and reporting accuracy

As previously mentioned, there has been a significant evolution in the audit methodologies of large accounting firms. The new audit approaches apply a holistic perspective and emphasize a thorough understanding of the client’s business and business risks (e.g. Bell et al, 1997; Bell et al., 2005). This allows auditors to determine the extent to which risks are present that threaten the attainment of client strategic objectives and hence client strategic viability. Recent research regarding the business risk audit methodology provides mixed results with respect to its impact on audit quality. Several recent studies indicate that under certain conditions, the business risk methodology may

lead to greater audit effectiveness and efficiency (Erickson, Mayhew and Felix, 2000; Lemon et al., 2000; Kopp and O'Donnell, 2005; Choy and King, 2005). A study by Lemon et al. (2000) investigated the evolution of audit methodologies applied by large accounting firms and found that some firms that participated in the study had undertaken a fundamental review of how problems arise in audit engagements. These firms stated that perceived audit failures are generally not caused by the ineffectiveness of audit procedures in detecting misstatements, but are the result of difficulties arising from other aspects of the business context (e.g. the impact of rapidly changing business environments, globalization and technological advances on the client's business). Based on this finding, we argue that a thorough analysis of the client's business could potentially decrease the likelihood of audit reporting errors because it may enhance auditors' ability to recognize going-concern problems. Knechel (2002) supports this view and argues that going-concern decision-making would greatly benefit from a broad examination of risk and risk management, as described in the business risk auditing methodology. This evidence indicates that the business risk methodology may have a positive effect on audit reporting accuracy, which leads to the following hypothesis:

HYPOTHESIS 2A: *The likelihood of Type II audit reporting errors is lower (ceteris paribus) for clients that appointed a business risk auditor.*

On the other hand, a number of recent studies cast doubt on the positive effect of the business risk methodology on audit quality. A study by Ballou, Earley and Rich (2004) examined the effect of strategic information on the auditor's judgment about business-process performance. Their results suggest that when strategic-positioning information indicates that the client is in line with industry norms, information regarding a small problem in a business process will be weighted less than when the strategic-positioning information indicates that the client is trailing industry norms. This difference in processing when strategic-level information is favorable may have a negative impact on auditor judgment quality when problems are present within a business process as these risk increasing items might be underweighted.

Moreover, the findings of a study by O'Donnell and Schultz (2005) indicate that auditors who perform a strategic analysis of their client and develop favorable strategic risk assessments are less likely to adjust account-level risk assessments for inconsistent

fluctuations in accounts, even though strategic risk had no direct implications for fluctuations in these accounts. Hence, O'Donnell and Schultz (2005) conclude that auditors may underestimate the risk of financial misstatement when they assess strategic risks at lower levels. Both studies (Ballou et al., 2004; and O'Donnell and Schultz, 2005) on auditor judgment in a business risk audit setting suggest that under certain circumstances, the performance of a strategic analysis may hinder professional scepticism. Based on this research, we formulate a competing hypothesis which states that the implementation of the business risk methodology may have a negative impact on audit reporting accuracy, leading to an increase in the likelihood of Type II errors:

HYPOTHESIS 2B: *The likelihood of Type II audit reporting errors is higher (ceteris paribus) for clients that appointed a business risk auditor.*

4.3.3 Industry specialisation, client operating and strategic initiatives and reporting accuracy

Industry specialist auditors' more extensive knowledge of their clients' industry not only enables them to benchmark the client financial performance against industry norms (see supra), but also to assess the appropriateness of company strategic initiatives in view of current industry trends and market needs. As noted earlier, specialist auditors are likely to develop databases detailing industry-specific best practices (Krishnan, 2003), allowing them to evaluate management strategic and operating initiatives against optimal practices in the industry. In addition, industry specialists are likely to have a profound understanding of the external risks that might threaten the attainment of the company's strategic objectives and should be able to judge whether the client's strategy has addressed external forces in the industry such as lifestyle trends, new entrants, regulation, technology etc... In this respect, Biggs, Selfridge and Krupka (1993) argue that in a going-concern decision context, knowledge of the client's operations and industry, and events in the client's environment is critical to understanding the causes of financial distress and evaluating management's plans to mitigate financial problems.

This reasoning leads to our third hypothesis, which suggests that specialist auditors are likely to be better informed with respect to the adequacy of management initiatives in order to overcome adverse conditions:

HYPOTHESIS 3: *Strategic and operating management initiatives decrease the likelihood of Type II reporting errors (ceteris paribus), given that the company is audited by an industry specialist auditor*

4.3.4 Audit methodology, client operating and strategic initiatives and reporting accuracy

Under the business risk methodology, risk assessment typically starts with a strategic analysis of the client. This assessment comprises an analysis of the industry within which the client is operating, the client's strategy to achieve a sustainable competitive advantage, the business risks that threaten the success of this strategy and the client's responses to these risks. As such, the auditor gains a thorough understanding of the adequacy and feasibility of the company's strategy in light of the external business environment and client internal processes and resources (Bell et al., 1997). This is in contrast to traditional auditing, where a formal analysis of the client's strategy and whether it can be achieved are not incorporated into the audit process. Under the business risk auditing methodology however, assessment of client strategic viability is primordial and provides the basis for forming financial statement expectations.

Bell et al. (1997) state that this strategic analysis is particularly valuable to assess the overall business viability of the client, implying that this information is potentially very useful for going-concern decision-making. Hence, we formulate the following hypothesis, which states that the likelihood of Type II reporting errors is lower when a client that implements strategic or operating turnaround initiatives is audited by a business risk auditor:

HYPOTHESIS 4A: *Strategic and operating management initiatives decrease the likelihood of Type II reporting errors (ceteris paribus), given that the company is audited by a business risk auditor*

Bell et al. (1997) also emphasize that a thorough understanding of the client's business and industry is of vital importance to conduct this analysis. This implies that the benefits of this type of analysis can only be realized if the auditor obtains a complete and correct insight into the dynamics of the client's business and industry. Moreover, as noted

earlier, research by Ballou et al. (2004) and O'Donnell and Schultz (2005) suggests that the assessment of strategic performance may have a negative impact on audit quality under certain circumstances.

Based on this argumentation, we state an alternative hypothesis which predicts that the implementation of strategic and operating management initiatives may increase the likelihood of Type II reporting errors when the company is audited by a business risk auditor:

HYPOTHESIS 4B: *Strategic and operating management initiatives increase the likelihood of Type II reporting errors (ceteris paribus), given that the company is audited by a business risk auditor*

4.4 MODEL SPECIFICATION AND VARIABLE MEASUREMENT

In order to investigate the above research questions, we conduct our analyses in three stages. In the first stage, we estimate a base model to predict the likelihood of reporting errors based on prior research. Subsequently, we assess which test variables with respect to industry specialisation and auditor type have incremental explanatory power beyond the control variables. In the second stage, we develop a number of regression models that test the relationship between industry specialisation, management actions and the likelihood of Type II reporting errors. In the third stage, we estimate a series of regression models that assess the relationship between audit methodology, management actions and the likelihood of Type II reporting errors.

Stage 1:

- 1) $ERROR_{II} = f(\text{control variables})$
- 2) $ERROR_{II} = f(\text{control variables, auditor specialisation})$
- 3) $ERROR_{II} = f(\text{control variables, audit methodology})$
- 4) $ERROR_{II} = f(\text{control variables, industry specialisation, audit methodology, industry specialisation*audit methodology})$

Stage 2:

- 5) $ERROR\ II = f(\text{control variables, auditor specialisation, management initiatives, auditor specialisation} \times \text{management initiatives})$

Stage 3:

- 6) $ERROR\ II = f(\text{control variables, audit methodology, management initiatives, audit methodology} \times \text{management initiatives})$

4.4.1 Dependent variable

The dependent variable represents Type II reporting errors (ERROR II) and equals one if the audit opinion prior to bankruptcy was not modified for going-concern reasons, and zero otherwise.

4.4.2 Independent variables

4.4.2.1 Industry specialisation variables

Prior research has used various measures of industry specialisation. Most of these measures are based on audit firm market share within a particular industry (see, for example, studies by Craswell et al., 1995; Ferguson and Stokes, 2002; Krishnan, 2003; Casterella et al., 2004; Chen, Moroney and Houghton, 2005). The underlying reasoning is that the firms with the largest market shares have developed the largest knowledge base within that particular industry and have made significant investments in developing industry-specific audit technologies (Neal and Riley, 2004). We classify auditors as industry specialists if they have a within-industry market-share of at least 25 percent. Prior to the consolidation of the Big 8 into the Big 6 in 1989, the auditor specialisation literature designated auditors as industry specialists if they audited more than 10 percent of firms in the industry (see, for example, Palmrose, 1986; Defond, 1992; Craswell et al., 1995). After the consolidation, most auditor specialisation studies used a specialisation measure of 20 percent market share (see, for example, Neal and Riley, 2004; Dunn and Mayhew, 2004; Casterella et al., 2004; Chen et al., 2005). Because the data of this study are drawn from the years 1998-2001, with all observations after the 1998 PricewaterhouseCoopers merger, a more restrictive specialisation measure seems appropriate. We set our measure

of industry specialisation at a 25 percent market share cut-off, which requires industry specialists to service a market share at least 25 percent greater than if the firms were to split the industry evenly among them. The variable SPECIALIST is set equal to one if the company is audited by a Big 5 auditor with at least 25 percent market share in the industry, and zero otherwise. The auditor's industry share (using the square root of client sales as the base) in each two-digit SIC code is computed using the population of all available observations (comprising Big 5 and non-Big 5 clients) from Compustat for the period 1998-2001¹⁰.

4.4.2.2 Audit methodology variable

Lemon, Tatum and Turley (2000) conducted the first major international study of the business risk audit methodology. This study involved a survey and detailed interviews with partners from Big 5 audit firms and some second tier firms in the UK, US, and Canada. The results from this study indicated that substantial differences exist between audit firms with respect to the implementation of this audit methodology. Due to confidentiality agreements, however, the nature and extent of these variations were not explored in this study. This issue received further attention in a more recent study by Curtis and Turley (2005), providing more details with respect to the diversity in the approaches of the Big 5 firms. The interviews in this study indicated that two of the five largest audit firms adopted the business risk methodology to a great extent, while the remaining three were somewhat lagging behind. Issues that caused much debate between the participating firms were the scope of business risks to be addressed, how such risks should be linked to the financial statements, the appropriateness of relying on high level controls and the concept and implications of 'significant risks'. In this study, we proxy for the differences between Big 5 audit firms with regard to the adoption of the business risk methodology by including a dummy variable BRA, which is coded 1 if the company is audited by one of the two Big 5 firms that implemented the business risk audit methodology to a great extent, and 0 otherwise.

¹⁰ All but two industries included in this study comprise more than 30 companies. Excluding the three observations from these two industries (which comprise 29 and 24 companies) does not change our results.

4.4.2.3 Strategic and operating variables

We measure company turnaround approach using variables that contain information regarding turnaround strategies that have been implemented during the year under audit to overcome financial difficulties. Consistent with the categorization of management turnaround initiatives in chapter 2, we investigate the impact of three categories of management initiatives that may potentially mitigate the adverse conditions affecting performance. First, we distinguish between strategic and operating turnaround initiatives. This categorization stems from the strategic literature, where the distinction between a strategic and operating turnaround approach was first introduced by Hofer (1980). Operating initiatives aim at a short-term improvement in financial performance through for example cost-cutting, asset disposal, increased marketing efforts and upgrading existing products and processes, whereas strategic initiatives aim at long-term profitability by solving external, strategic problems through for example cooperative agreements, acquisitions or the introduction of new products.

Based on prior research with respect to the performance implications of company strategy (see, for example, Stuart, 2000; King, Dalton, Daily and Covin, 2004; Mishina, Pollock and Porac, 2004), we further categorize the strategic turnaround initiatives into initiatives that are expected to have a positive impact on the company's liquidity status within the next 12 months and strategic approaches that are only expected to have a long-term impact on performance. We classify cooperative agreements with other firms as a strategy expected to have a positive short-term impact on performance, while the introduction of new products and acquisitions of other companies are considered strategies with a long-term impact on performance.

Based on this categorization of company turnaround initiatives, we define the variable OPERATING as a discrete variable reflecting the number of operating initiatives implemented by the company during the year under audit. The variable STRATEGIC is introduced to capture the aggregate impact of all strategic management actions. We categorize these strategic actions further into STRATST and STRATLT, which reflect the number of strategic initiatives that are expected to have a short-term and long-term impact on corporate performance.

The information regarding client operating and strategic initiatives was manually collected from the relevant 10-Ks filed with the SEC, by reading these documents cover to cover and completing a strategic scorecard. With respect to operating initiatives

(OPERATING), we assessed whether the company engaged in: (1) cost-cutting activities, (2) asset disposal, (3) upgrading existing products and processes and (4) increasing marketing efforts. This provided a discrete measure for each company with values from 0 to 4, reflecting the number of operating initiatives undertaken by the client during the year under audit. This score was subsequently divided by the maximum score in the sample to obtain a measure with a range from 0 to 1. With respect to strategic initiatives (STRATEGIC), we assessed whether the company: (1) introduced new products, (2) acquired other companies, and (3) entered into cooperative agreements with other firms. This resulted in a discrete measure with values from 0 to 3, which was subsequently divided by its maximum score in the sample. We define STRATST as a variable that captures a company's engagement in strategic initiatives that are capable of generating a short-term impact on performance. This variable was coded 1 if the company engaged in cooperative agreements with other firms during the year under audit, and 0 otherwise. Finally, in order to construct a measure for strategic initiatives that are likely to have only a long-term impact on performance (STRATLT), we assessed whether the company (1) acquired other companies and (2) introduced new products during the year under audit. This provided a discrete measure with values from 0 to 2, which was subsequently divided by the maximum score in the sample.

Another category of management initiatives to mitigate adverse conditions consists of money-raising activities identified in prior audit opinion research (Behn, Kaplan and Krumwiede, 2001; Geiger and Rama, 2003). We construct a measure RAISEMONEY, by assessing whether (1) the auditee plans to borrow funds through existing bank lines of credit or other approved debt instruments, and (2) the auditee plans to issue equity through existing or committed arrangements. The coding of these money-raising activities provides a discrete measure with values from 0 to 2, which was subsequently divided by the maximum score in the sample. The information regarding client initiatives to raise money was manually collected from the relevant 10-Ks filed with the SEC.

4.4.2.4 Control variables

Based on prior research (McKeown et al., 1991; Raghunandan and Rama, 1995; Carcello et al., 1995; Geiger and Raghunandan 2001; Gaeremynck and Willekens, 2003; Knechel and Vanstraelen, 2004), we include a number of control variables capturing the financial condition of the firm, bankruptcy lag, and firm size. Consistent with prior

research, we measure client size using log of net sales (LNSALES). We also use the financial distress indicator developed by Zmijewski (1984) to calculate the probability of bankruptcy (ZMIJEWSKI). In addition, we classify a company as being in default (DEFAULT) if there is either payment default or technical default of loan covenants. Finally, we include a company's bankruptcy lag (SQBANKRUPTLAG), reflecting the square root of days from the date of the audit report to the bankruptcy date. LNSALES and the necessary data to calculate the financial distress indicator ZMIJEWSKI were collected from the WORLDScope database. SQBANKRUPTLAG and DEFAULT were calculated with information from the WORLDScope database and the company's 10-K. The definition of the test and control variables is given in table 4.1.

TABLE 4.1: VARIABLE DEFINITIONS AND EXPECTED SIGNS

Variable	Definition	Expected sign
Dependent variable		
ERROR	1 if no going-concern report was issued for a company that went bankrupt the subsequent year; 0 otherwise	
Independent variables		
<i>Audit Methodology</i>		
BRA	1 if the company is audited by a Big 5 auditor who adopted the business risk methodology, 0 otherwise	+/-
<i>Auditor Specialisation</i>		
SPECIALIST	1 if the company is audited by a Big 5 auditor who holds more than 25% market share (measured in square root of client net sales) in a two-digit industry, 0 otherwise	-
<i>Management initiatives</i>		
OPERATING	A score from 0 to 4, scaled by its maximum value in the sample, representing the sum of all operating initiatives (marketing, asset disposal, upgrading of products and processes, cost-cutting)	?
STRATEGIC	A score from 0 to 3, scaled by its maximum value in the sample, representing the sum of all strategic initiatives (new products, acquisitions, cooperative agreements)	?
STRATST	Dummy variable which equals one if the company undertakes strategic initiatives with a short-term impact (cooperative agreements)	?
STRATLT	A score from 0 to 2, scaled by its maximum value in the sample, representing the sum of all strategic initiatives with a long-term impact (new products, acquisitions)	?
<i>Money-raising activities</i>		
RAISEMONEY	A score from 0 to 2, scaled by its maximum value in the sample, representing the sum of financial initiatives to raise money through the issuance of stock or additional borrowings	?

TABLE 4.1: VARIABLE DEFINITIONS AND EXPECTED SIGNS

Variable	Definition	Expected sign
<i>Control variables</i>		
ZMIJEWSKI	probability of bankruptcy, calculated from the Zmijewski (1984) weighted probit bankruptcy prediction model	-
DEFAULT	1 if in payment default or technical default of loan covenants, 0 otherwise	-
SQBANKRUPTLAG	the square root of the number of days from the audit report date to the date of bankruptcy	+
LNSALES	natural log of net sales	?

4.5 SAMPLE SELECTION

Because the purpose of this study is to shed some light on the causes of Type II errors, we run our analysis on a sample of bankrupt companies. We obtained a list of US public company bankruptcies for the years 1999 through 2002 by searching the Wall street Journal Index and several other web-based resources¹¹ under the heading “chapter 11” for those years. We subsequently restricted our sample to companies in the manufacturing industries (SIC 20 to 39) to eliminate confounding industry effects. This resulted in a sample of 127 manufacturing companies that went bankrupt in the 1999-2002 period. Consistent with prior research (e.g., McKeown et al. 1991; Mutchler et al. 1997; Geiger and Raghunandan 2001), for firms that had already filed for bankruptcy at the time the audit opinion was issued we use the prior year's data provided the bankruptcy occurred within a year of the prior year's audit opinion date.

Because companies sometimes enter into bankruptcy proceedings as a strategic reaction to sudden adverse events, Hopwood, McKeown and Mutchler (1994) argue that investigations of auditors' going-concern opinion decisions should be conducted on samples that have been partitioned into stressed and non-stressed categories. Hence, we restrict the analysis to financially stressed companies in the same manner as our subsample of non-going-concern companies in chapter 2.

Applying these restrictions to the sample of bankrupt companies resulted in a sample of 102 companies for which the following conditions are satisfied: (a) the companies went bankrupt in the years 1999 to 2002, (b) the companies had SIC codes in

¹¹ www.defaultrisk.com, www.BankruptcyData.com

the range 20-39, (c) the companies had audit opinions less than 12 months prior to the bankruptcy date, and (d) the companies exhibited at least two financial distress criteria. More specifically, we retained 14 bankrupt companies in 1998, 16 bankrupt companies in 1999, 45 bankrupt companies in 2000 and 27 bankrupt companies in 2001. One observation was identified as an outlier and removed from the sample. This yielded a final sample of 101 firm observations. The number of observations per industry is given in table 4.2.

TABLE 4.2: SAMPLE OF BANKRUPT COMPANIES PER TWO DIGIT INDUSTRY GROUPING

Two-digit SIC Code	Industry name	Number of Companies
20	Food and Kindred Products	5
22	Textile Mill Products	7
23	Apparel and Other Textile Products	4
24	Lumber and Wood Products	1
25	Furniture and Fixtures	1
26	Paper and Allied Products	4
27	Printing and Publishing	2
28	Chemicals and Allied Products	11
30	Rubber and Miscellaneous Plastic Products	2
31	Leather and Leather Products	1
32	Stone, Clay and Glass Products	5
33	Primary Metal Industries	6
34	Fabricated Metal Products	2
35	Industrial Machinery and Equipment	14
36	Electronic and Other Equipment	14
37	Transportation Equipment	11
38	Instruments and Related Products	7
39	Miscellaneous Manufacturing	4
		101

4.6 RESULTS

4.6.1 Descriptive statistics and univariate results

Table 4.3 contains the descriptive statistics for the full sample of bankrupt companies, whereas table 4.4 compares the descriptive statistics of the companies with reporting misclassifications and those without reporting misclassifications. Inspection of table 4.3 reveals that that 26 percent of the sample companies are audited by a business risk auditor and 31 percent of the companies are audited by a specialist auditor. With respect to the implemented management initiatives, we note that more than half of the sample firms resort to an operating strategy (OPERATING, median = 0.50) or a long-term

expansionary strategy (STRATLT, median = 0.50), while a cooperative strategy is much less implemented (STRATST, median = 0.00).

TABLE 4.3: DESCRIPTIVE STATISTICS

Variables	Mean	Median	St. Dev.	Minimum	Maximum
<i>Dependent variable</i>					
ERROR II	0.45	0.00	0.50	0.00	1.00
<i>Independent variables</i>					
<i>Audit Methodology</i>					
BRA	0.26	0.00	0.44	0.00	1.00
<i>Auditor Specialisation</i>					
SPECIALIST	0.31	0.00	0.46	0.00	1.00
<i>Operating approach</i>					
OPERATING	0.51	0.50	0.24	0.00	1.00
<i>Strategic approach</i>					
STRATEGIC	0.38	0.33	0.29	0.00	1.00
STRATST	0.36	0.00	0.48	0.00	1.00
STRATLT	0.39	0.50	0.35	0.00	1.00
<i>Money-raising activities</i>					
RAISEMONEY	0.26	0.00	0.30	0.00	1.00
<i>Control variables</i>					
ZMIJEWSKI	-0.51	-1.28	3.25	-5.29	14.87
DEFAULT	0.55	1.00	0.50	0.00	1.00
SQBANKRUPTLAG	13.95	15.00	3.85	4.36	19.08
LNSALES	11.74	12.14	2.56	0.00	15.61

Table 4.4 reports the results of a t-test of differences between firms with audit reporting errors and firms without audit reporting errors. The results show that companies with a Type II reporting error are generally larger (LNSALES, t-statistic = 2.91), are less likely to be in default (DEFAULT, t-statistic = 3.82), experience less financial distress (ZMIJEWSKI, t-statistic = 4.05), have a longer bankruptcy lag (BANKRUPTLAG, t-statistic = 4.80), and are more likely to disclose plans to raise money through additional borrowings or the issuance of stock (RAISEMONEY, t-statistic = 4.87). The variables representing strategic initiatives and auditor type do not differ significantly between both subsamples of bankrupt firms.

TABLE 4.4: UNIVARIATE TESTS OF DIFFERENCES BETWEEN REPORTING ERROR FIRMS AND NON-REPORTING ERROR FIRMS

Variables	Non-reporting error firms (n=56)		Reporting error firms (n=45)		Test of difference (t-statistic)
	Mean	Std. Dev.	Mean	Std. Dev.	
<i>Audit Methodology</i>					
BRA	0.25	0.44	0.27	0.45	0.19
<i>Auditor Specialisation</i>					
SPECIALIST	0.27	0.45	0.36	0.48	0.94
<i>Operating approach</i>					
OPERATING	0.52	0.24	0.49	0.25	0.48
<i>Strategic approach</i>					
STRATEGIC	0.36	0.27	0.41	0.31	0.87
STRATST	0.30	0.46	0.42	0.50	1.23
STRATLT	0.38	0.32	0.40	0.39	0.23
<i>Money-raising activities</i>					
RAISEMONEY	0.14	0.26	0.41	0.29	4.87***
<i>Control variables</i>					
ZMIJEWSKI	0.52	3.73	-1.79	1.87	4.05***
DEFAULT	0.71	0.46	0.36	0.48	3.82***
SQBANKRUPTLAG	12.51	4.07	15.74	2.67	4.80***
LNSALES	11.13	2.85	12.51	1.92	2.91***

* indicates significance at the .10 level (two-tailed)

** indicates significance at the .05 level (two-tailed)

*** indicates significance at the .01 level (two-tailed)

Tables 4.5a, 4.5b, 4.5c, and 4.5d summarize the Big 5 industry market shares for all 18 manufacturing industries in the study. Consistent with the Big 5 industry specialisation measures used in a study by Francis et al. (2005), PricewaterhouseCoopers is the industry leader in more than half of the manufacturing industries. Averaged across all years, PricewaterhouseCoopers is the national leader in 11 industries, Ernst & Young, Deloitte & Touche and Arthur Andersen are national leaders in 2 industries, and KPMG is the national leader in one industry.

TABLE 4.5A: BIG 5 AUDITOR MARKET SHARES FOR SELECTED INDUSTRIES FOR 1998

Two-Digit SIC	Industry	Industry Market Shares				
		AA	EY	DT	KPMG	PW
20	Food and Kindred Products	0.12	0.15	0.13	0.20	0.34
22	Textile Mill Products	0.16	0.36	0.17	0.12	0.10
23	Apparel and Other Textile Products	0.20	0.25	0.21	0.03	0.16
24	Lumber and Wood Products	0.34	0.05	0.11	0.08	0.36
25	Furniture and Fixtures	0.24	0.09	0.08	0.13	0.36
26	Paper and Allied Products	0.22	0.14	0.15	0.13	0.28
27	Printing and Publishing	0.12	0.19	0.21	0.18	0.24
28	Chemicals and Allied Products	0.13	0.13	0.17	0.15	0.32
30	Rubber and Miscellaneous Plastic Products	0.20	0.22	0.10	0.09	0.33
31	Leather and Leather Products	0.00	0.30	0.13	0.21	0.21
32	Stone, Clay and Glass Products	0.26	0.22	0.15	0.10	0.21
33	Primary Metal Industries	0.13	0.24	0.13	0.03	0.41
34	Fabricated Metal Products	0.19	0.22	0.07	0.13	0.34
35	Industrial Machinery and Equipment	0.15	0.19	0.11	0.13	0.33
36	Electronic and Other Equipment	0.12	0.21	0.13	0.25	0.22
37	Transportation Equipment	0.11	0.18	0.23	0.12	0.31
38	Instruments and Related Products	0.15	0.22	0.12	0.11	0.32
39	Miscellaneous Manufacturing	0.12	0.15	0.27	0.13	0.21

AA: Arthur Andersen; EY: Ernst & Young; DL: Deloitte & Touche; KPMG: Klynveld Peat Marwick Goerdeler and PWC: PricewaterhouseCoopers

TABLE 4.5B: BIG 5 AUDITOR MARKET SHARES FOR SELECTED INDUSTRIES FOR 1999

Two-Digit SIC	Industry	Industry Market Shares				
		AA	EY	DT	KPMG	PWC
20	Food and Kindred Products	0.12	0.14	0.14	0.19	0.35
22	Textile Mill Products	0.15	0.37	0.16	0.13	0.11
23	Apparel and Other Textile Products	0.19	0.22	0.28	0.04	0.14
24	Lumber and Wood Products	0.33	0.10	0.13	0.09	0.31
25	Furniture and Fixtures	0.25	0.10	0.09	0.14	0.32
26	Paper and Allied Products	0.22	0.16	0.14	0.12	0.28
27	Printing and Publishing	0.13	0.22	0.16	0.20	0.23
28	Chemicals and Allied Products	0.14	0.13	0.17	0.15	0.32
30	Rubber and Miscellaneous Plastic Products	0.21	0.22	0.08	0.08	0.34
31	Leather and Leather Products	0.06	0.28	0.12	0.19	0.20
32	Stone, Clay and Glass Products	0.26	0.20	0.22	0.07	0.18
33	Primary Metal Industries	0.12	0.27	0.15	0.05	0.38
34	Fabricated Metal Products	0.19	0.21	0.08	0.11	0.34
35	Industrial Machinery and Equipment	0.15	0.18	0.12	0.16	0.33
36	Electronic and Other Equipment	0.11	0.19	0.13	0.26	0.25
37	Transportation Equipment	0.11	0.21	0.23	0.11	0.31
38	Instruments and Related Products	0.16	0.22	0.10	0.10	0.33
39	Miscellaneous Manufacturing	0.11	0.15	0.26	0.13	0.19

AA: Arthur Andersen; EY: Ernst & Young; DL: Deloitte & Touche; KPMG: Klynveld Peat Marwick Goerdeler and PWC: PricewaterhouseCoopers

TABLE 4.5C: BIG 5 AUDITOR MARKET SHARES FOR SELECTED INDUSTRIES FOR 2000

Two-Digit SIC	Industry	Industry Market Shares				
		AA	EY	DT	KPMG	PWC
20	Food and Kindred Products	0.12	0.14	0.10	0.22	0.37
22	Textile Mill Products	0.13	0.40	0.16	0.15	0.07
23	Apparel and Other Textile Products	0.19	0.25	0.25	0.04	0.14
24	Lumber and Wood Products	0.35	0.11	0.12	0.10	0.29
25	Furniture and Fixtures	0.26	0.08	0.09	0.11	0.33
26	Paper and Allied Products	0.14	0.20	0.16	0.16	0.29
27	Printing and Publishing	0.15	0.20	0.16	0.21	0.23
28	Chemicals and Allied Products	0.14	0.16	0.17	0.19	0.27
30	Rubber and Miscellaneous Plastic Products	0.18	0.21	0.11	0.13	0.30
31	Leather and Leather Products	0.06	0.27	0.13	0.19	0.21
32	Stone, Clay and Glass Products	0.27	0.22	0.25	0.10	0.09
33	Primary Metal Industries	0.12	0.24	0.13	0.03	0.45
34	Fabricated Metal Products	0.17	0.19	0.07	0.13	0.36
35	Industrial Machinery and Equipment	0.15	0.23	0.12	0.15	0.29
36	Electronic and Other Equipment	0.10	0.19	0.12	0.26	0.26
37	Transportation Equipment	0.13	0.20	0.25	0.11	0.29
38	Instruments and Related Products	0.14	0.24	0.09	0.11	0.35
39	Miscellaneous Manufacturing	0.13	0.11	0.24	0.10	0.20

AA: Arthur Andersen; EY: Ernst & Young; DL: Deloitte & Touche; KPMG: Klynveld Peat Marwick Goerdeler and PWC: PricewaterhouseCoopers

TABLE 4.5D: BIG 5 AUDITOR MARKET SHARES FOR SELECTED INDUSTRIES FOR 2001

Two-Digit SIC	Industry	Industry Market Shares				
		AA	EY	DT	KPMG	PWC
20	Food and Kindred Products	0.10	0.17	0.11	0.23	0.34
22	Textile Mill Products	0.10	0.44	0.09	0.18	0.08
23	Apparel and Other Textile Products	0.18	0.23	0.24	0.04	0.19
24	Lumber and Wood Products	0.32	0.13	0.12	0.07	0.32
25	Furniture and Fixtures	0.22	0.12	0.08	0.12	0.34
26	Paper and Allied Products	0.16	0.21	0.12	0.15	0.32
27	Printing and Publishing	0.14	0.22	0.14	0.21	0.23
28	Chemicals and Allied Products	0.14	0.14	0.16	0.16	0.32
30	Rubber and Miscellaneous Plastic Products	0.18	0.22	0.16	0.11	0.26
31	Leather and Leather Products	0.06	0.29	0.13	0.20	0.19
32	Stone, Clay and Glass Products	0.25	0.23	0.22	0.10	0.13
33	Primary Metal Industries	0.12	0.21	0.15	0.03	0.44
34	Fabricated Metal Products	0.17	0.22	0.08	0.11	0.36
35	Industrial Machinery and Equipment	0.14	0.27	0.11	0.14	0.29
36	Electronic and Other Equipment	0.11	0.20	0.11	0.25	0.25
37	Transportation Equipment	0.09	0.21	0.24	0.11	0.31
38	Instruments and Related Products	0.13	0.24	0.11	0.10	0.35
39	Miscellaneous Manufacturing	0.17	0.12	0.22	0.13	0.19

AA: Arthur Andersen; EY: Ernst & Young; DL: Deloitte & Touche; KPMG: Klynveld Peat Marwick Goerdeler and PWC: PricewaterhouseCoopers

4.6.2 Multivariate analysis

The results of the multivariate logistic analysis of Type II reporting errors are presented in tables 4.6 and 4.7. In table 4.6, we present the results of four regression models that provide a test of hypotheses 1 and 2 by including test variables relating to industry specialisation and audit methodology. The models in table 4.7 include a set of variables representing strategic and operating management initiatives and explore interaction effects between these variables, industry specialisation and the business risk methodology. As such, they provide a test of hypotheses 3 and 4.

In table 4.6, model 1 is estimated to provide a base model for Type II reporting errors. The model has good explanatory power with a chi-square statistic of 56.38, a pseudo R^2 of 0.53 and a McFadden R^2 of 0.41. Consistent with prior research, the results indicate that a Type II reporting error is less likely to occur when the company is smaller (LNSALES, $p = 0.0131$), has a higher probability of bankruptcy, (ZMIJEWSKI, $p = 0.0017$), is in default (DEFAULT, $p = 0.0009$), and has a shorter bankruptcy lag (SQBANKRUPTLAG, $p = 0.0006$).

In order to investigate our first two hypotheses, models 2, 3 and 4 in table 4.6 add our test variables with respect to auditor specialisation and audit methodology to the base model. The pseudo R^2 of these models varies between 0.53 and 0.54 and the McFadden R^2 varies between 0.41 and 0.43, which is comparable to the base model. The estimation results of model 2 suggest that industry expertise (SPECIALIST, $p = 0.8667$) is not significantly associated with the likelihood of type II reporting errors. These findings are not supportive of our first hypothesis, which states that the likelihood of type II reporting errors is lower for industry specialist auditors. In addition, the estimation results from the third regression model show no significant association between audit reporting accuracy and the business risk methodology (BRA, $p = 0.1379$), which contradicts hypotheses 2a and 2b. In model 4, we explore interaction effects between the business risk methodology and industry specialisation. Interestingly, the estimation results of this model suggest that the likelihood of reporting errors is higher for business risk auditors that are not industry specialists (BRA, $p = 0.0752$). As such, we find some support for hypothesis 2a, which predicts that the likelihood of audit failure increases when a company is audited by a business risk auditor. This finding is also consistent with previous research by Ballou et al. (2004) and O'Donnell and Schultz (2005) indicating that

under certain circumstances the business risk audit methodology might have a negative impact on audit reporting quality

The regression models in table 4.7 investigate hypotheses 3 and 4 by testing interaction effects between management initiatives and industry specialisation, as well as interaction effects between management initiatives and the business risk methodology. Models 5a and 5b include interaction effects between industry specialisation and client turnaround initiatives, yielding a pseudo R^2 of 0.60 and a McFadden R^2 of 0.53 for model 5a and a pseudo R^2 of 0.61 and a McFadden R^2 of 0.57 for model 5b. The estimation results of these models indicate that the likelihood of Type II reporting errors is higher for clients resorting to operating initiatives to resolve their financial difficulties (OPERATING, $p < 0.0388$), as well as for clients that implement initiatives to raise money (RAISEMONEY, $p < 0.0049$) or strategic initiatives that are expected to generate cash inflows in the short run (STRATST, $p = 0.0621$). This suggests that these turnaround initiatives might be potentially misleading with respect to a client's ability to remain in business for the next twelve months, as they increase the likelihood that a clean opinion is issued for a soon-to be bankrupt company. The estimation results from models 5a and 5b further indicate that the negative impact of operating turnaround initiatives on the likelihood of type II reporting errors is mitigated when the auditor is an industry specialist (OPERATING*SPECIALIST, $p < 0.0875$) This is consistent with hypothesis 3 and suggests that industry specialist auditors might be better able to judge the adequacy of client operating initiatives to induce recovery than non-specialist auditors. However, this positive effect only holds for operating turnaround initiatives as we find no evidence of a positive effect of a specialist auditors' consideration of strategic initiatives on reporting accuracy (STRATEGIC*SPECIALIST, $p = 0.6310$, STRATST*SPECIALIST, $p = 0.1767$, STRATLT*SPECIALIST, $p = 0.7070$).

TABLE 4.6: LOGISTIC REGRESSION MODELS TESTING THE IMPACT OF INDUSTRY SPECIALISATION AND AUDIT METHODOLOGY ON REPORTING ERRORS

Variables	Model 1			Model 2			Model 3			Model 4		
	coeff	χ^2	p-value	coeff	χ^2	p-value	coeff	χ^2	p-value	coeff	χ^2	p-value
C	-9.18	11.30	0.0008	-9.16	11.18	0.0008	-9.86	12.16	0.0005	-9.90	12.02	0.0005
LNSALES	0.45	6.16	0.0131	0.45	5.84	0.0157	0.46	6.28	0.0122	0.45	5.76	0.0164
ZMIJEWSKI	-0.47	9.88	0.0017	-0.48	9.80	0.0017	-0.48	9.92	0.0016	-0.49	9.80	0.0017
DEFAULT	-2.00	11.08	0.0009	-2.00	11.06	0.0009	-2.27	12.44	0.0004	-2.37	13.01	0.0003
SQBANKRUPTLAG	0.30	11.72	0.0006	0.30	11.68	0.0006	0.33	12.32	0.0004	0.33	11.31	0.0008
SPECIALIST				0.10	0.03	0.8667				0.67	0.86	0.3536
BRA							0.97	2.21	0.1379	1.33	3.17	0.0752
SPECIALIST*BRA										-1.83	0.59	0.4442
McFadden R^2		0.41			0.41			0.42			0.43	
Pseudo R^2		0.53			0.53			0.54			0.54	
Model χ^2		56.38			56.41			58.65			59.82	

p-values are from two-sided tests

TABLE 4.7: LOGISTIC REGRESSION MODELS TESTING THE IMPACT OF INDUSTRY SPECIALISATION, AUDIT METHODOLOGY, AND CLIENT STRATEGIC ACTIONS ON REPORTING ERRORS

Variables	Model 5a			Model 5b			Model 6a			Model 6b		
	coeff	χ^2	p-value	coeff	χ^2	p-value	coeff	χ^2	p-value	coeff	χ^2	p-value
C	-16.62	14.82	0.0001	-16.71	14.87	0.0001	-15.61	12.40	0.0004	-16.12	12.86	0.0003
LNSALES	0.69	8.00	0.0047	0.65	7.34	0.0067	0.73	8.16	0.0043	0.72	8.11	0.0044
ZMIJEWSKI	-0.74	13.17	0.0003	-0.77	11.90	0.0006	-0.75	11.33	0.0008	-0.79	11.58	0.0007
DEFAULT	-2.11	7.79	0.0053	-2.14	7.54	0.0060	-2.28	7.46	0.0063	-2.38	7.86	0.0051
SQBANKRUPTLAG	0.39	11.19	0.0008	0.44	12.64	0.0004	0.42	10.35	0.0013	0.45	11.48	0.0007
SPECIALIST	3.59	2.37	0.1235	3.68	2.19	0.1391						
BRA							-2.05	0.74	0.3910	-0.90	0.12	0.7330
RAISEMONEY	3.81	10.18	0.0014	3.49	7.92	0.0049	3.97	9.67	0.0019	4.11	8.91	0.0028
OPERATING	3.82	4.72	0.0298	3.82	4.27	0.0388	-0.34	0.04	0.8477	-0.14	0.01	0.9381
STRATEGIC	0.43	0.09	0.7607				-0.55	0.13	0.7233			
STRATST				1.53	3.48	0.0621				0.22	0.05	0.8270
STRATLT				-1.49	1.24	0.2657				-0.66	0.31	0.5779
OPERATING*SPECIALIST	-6.00	3.25	0.0714									
STRATEGIC*SPECIALIST	-1.58	0.23	0.6310									
STRATST*SPECIALIST				-2.58	1.82	0.1767						
STRATLT*SPECIALIST				0.92	0.14	0.7070						
OPERATING*BRA							6.03	3.61	0.0573	5.07	2.29	0.1306
STRATEGIC*BRA							-0.24	0.01	0.9350			
STRATST*BRA										0.77	0.25	0.6184
STRATLT*BRA										-2.39	0.82	0.3659
McFadden R ²		0.53			0.57						0.57	
Pseudo R ²		0.60			0.61						0.61	
Model χ^2		73.67			78.73						79.21	

p-values are from two-sided tests

In table 4.7, we also present the results of our test of hypothesis 4. Models 6a and 6b test the significance of interaction effects between audit methodology and client turnaround initiatives. These models yield pseudo R^2 's of 0.60 and 0.61 and McFadden R^2 's of 0.55 and 0.57 and show no evidence of a significant relationship between client strategic and operating turnaround initiatives and the likelihood of type II errors (OPERATING, $p < 0.9381$, STRATEGIC, $p = 0.7233$, STRATST, $p = 0.8270$, STRATLT, $p = 0.5779$), although the presence of initiatives to raise money remains significantly positively associated with the likelihood of type II reporting errors (RAISEMONEY, $p < 0.0028$). Furthermore, the estimation results from model 6a with respect to a business risk auditor's evaluation of operating and strategic management initiatives indicates that the likelihood of type II reporting errors is *higher* for clients that implement operating initiatives and are audited by a business risk auditor (OPERATING*BRA, $p = 0.0573$), whereas a business risk auditor's evaluation of strategic initiatives has no impact on reporting accuracy (STRATEGIC*BRA, $p = 0.9350$, STRATST*BRA, $p = 0.6184$, STRATLT*BRA, $p = 0.3659$). This result is supportive of hypothesis 4b, which states that the presence of strategic and operating turnaround initiatives increases the likelihood of Type II reporting errors if the company is audited by a business risk auditor. This suggests that an analysis of client strategic viability as incorporated in the business risk audit methodology may not always be beneficial to audit quality. In other words, client strategic analysis may only contribute to audit quality if auditors have sufficient industry experience to judge the adequacy of client strategic and operating initiatives.

4.6.3 Sensitivity tests

To test the robustness of our results, we have performed several sensitivity analyses. Prior industry specialization studies (e.g. Craswell et al., 1995; Ferguson and Stokes, 2002; Mayhew and Wilkins, 2003; Chen et al., 2005) have estimated auditor market share using various measures of client size (e.g., total assets, net sales, audit fees). To ensure that our results do not depend on the chosen size measure, we replicated our analysis using total assets as a base for market share. This analysis (not tabulated) yields qualitatively similar results. More specifically, replication of table 4.6 shows that the coefficient of BRA ($p = 0.0904$) remains significantly positive in model 4, while the other variables with respect to audit methodology and industry specialization remain statistically

insignificant. Replication of the analysis in table 4.7 also yields qualitatively similar results.

As a second sensitivity test, we estimate market share using the number of clients as the base (see, for example, Craswell et al., 1995; Balsam et al., 2003; Mayhew and Wilkins, 2003). By using this measure, we control for situations where an auditor has a number of small clients in an industry and as such has developed industry specialist knowledge (Balsam et al., 2003). When we use this specialization measure, we cannot include the variable SPECIALIST*BRA in model 4 because there are no business risk auditors in the sample that audit more than 25 percent of the companies in a given industry. Besides this, the estimation results from table 4.6 (not tabulated) remain unchanged, showing a significantly positive coefficient of BRA ($p = 0.0999$) in model 4. Re-estimation of the results in table 4.7 (not tabulated) yields no significant results for our test variables, although RAISEMONEY remains significant ($p < 0.0038$) in all models. One potential explanation for this finding is that an unweighted market share measure based on the number of clients audited may not fully capture the impact that large clients have on auditors' development of industry specialty knowledge.

As a third sensitivity test, we use different cutoff levels (20 and 30 percent) to test the robustness of our results to alternative SPECIALIST cutoffs. Following Ferguson and Stokes (2002), Ferguson et al. (2003) and Chen et al. (2005), we also test an alternative industry specialization variable, LEADER, which is coded 1 if the company is audited by the largest supplier in the industry. The analysis (not tabulated) for the 20 percent cutoff yields similar results, except that STRATST is no longer significant ($p = 0.1492$).

When we apply the specialization cutoff of 30 percent (not tabulated), we can no longer estimate the variable SPECIALIST*BRA because we have no companies in the sample that are audited by a business risk auditor who supplies at least 30 percent of the industry. The estimation results of model 4 furthermore indicate that the rate of audit reporting errors is not only higher for non-specialist auditors that apply the business risk methodology (BRA, $p = 0.0550$), but also for specialist auditors that are not business risk auditors (SPECIALIST, $p = 0.0598$). Re-estimation of the results in table 2.7 yields no significant results for our test variables, except for RAISEMONEY, which is significant in all models ($p < 0.0045$).

Re-estimation of the models with the LEADER specialization measure (not tabulated) does not change our results, the only exception being that SPECIALIST now also becomes significant ($p = 0.0547$) in model 4 with a positive coefficient.

4.7 CONCLUSIONS

In this chapter, we examine the effect of audit methodology and auditor industry specialization on the likelihood of type II reporting errors. In addition, we investigate whether industry expertise or the implementation of the business risk methodology increases auditors' ability to judge the adequacy of management turnaround initiatives to mitigate financial distress.

With respect to the relationship between reporting accuracy, auditor specialization and audit methodology, we hypothesized a lower likelihood of audit reporting errors for industry specialist auditors and formulated two competing hypotheses with respect to the relationship between the implementation of the business risk audit methodology and the likelihood of Type II reporting errors. Finally, we argued that the effect of client operating and strategic initiatives on the likelihood of Type II reporting errors is dependent on whether those clients are audited by a business risk auditor or an industry specialist auditor.

In order to test the hypothesized relationships between reporting accuracy, industry specialization and audit methodology, we developed a sequence of logistic regression models. In the first phase of the analysis, we investigated the significance of test variables relating to industry specialization and audit methodology. The results of this analysis provide no evidence of a lower likelihood of audit reporting errors for industry specialist auditors or business risk auditors. However, we do find evidence of non-specialist business risk auditors *increasing* the likelihood of Type II reporting errors. In other words, our findings suggest that the implementation of the business risk methodology for non-specialist auditors might have a *negative* impact on audit reporting accuracy.

In the second phase of the analysis, we tested the relationship between reporting accuracy, industry specialization and client strategic and operating initiatives. The analysis indicates that the likelihood of Type II reporting errors is higher when a client implements

operating turnaround actions, initiatives to raise money or strategic actions that are likely to generate short-term cash inflows. The implementation of these strategies decreases the likelihood that a going-concern report is issued for a soon-to-be bankrupt company and as such has a negative impact on audit reporting accuracy. The results from this analysis furthermore suggest that the negative effect of operating initiatives on audit reporting accuracy is *reversed* when the auditor is an industry specialist. This finding underlines the importance of industry knowledge when judging the adequacy of client operating turnaround initiatives.

In the third and final phase of the analysis, we tested interaction effects between management initiatives and the implementation of the business risk methodology. Interestingly, the results indicate that the likelihood of reporting errors is *higher* for a client that implements operating initiatives and is audited by a business risk auditor, whereas a business risk auditors' evaluation of strategic initiatives has no significant impact on audit reporting accuracy. Together with the results from the analysis in phase two, this suggests that an analysis of client strategic viability may not be beneficial to audit quality, unless auditors have adequate industry experience to judge the adequacy of operating and strategic initiatives.

This study has important implications for audit practitioners and audit clients. In particular, the results with respect to auditors' evaluation of operating initiatives suggest that the likelihood of Type II reporting errors is lower when an industry specialist auditor is included in an audit team evaluating a distressed company that implements operating turnaround initiatives. This result also suggests that audit clients who are implementing operating turnaround initiatives might significantly reduce type II reporting errors by hiring an auditor who has sufficient industry experience. In addition, our findings indicate that auditors implementing the business risk methodology might gain from obtaining a complete overview of the specificities of their client's industry when conducting a strategic viability analysis.

We conclude with a discussion of limitations and possible avenues for future research. As in the second chapter of this dissertation, the sample size of this study is kept rather small and we investigate only the disclosure of management plans and actions in the annual report and 10-K as a proxy of implemented turnaround initiatives. A second

limitation relates to the use of a dummy variable as a proxy for the audit methodology implemented by the auditor. Future research might refine this measure by using various criteria to assess the degree to which the business risk methodology is implemented. Third, we have examined only type II reporting errors, although the investigation of the association between type I misclassifications, management initiatives, auditor specialisation and audit methodology might also yield important insights. Other interesting avenues for future research include the investigation of the relationship between the implementation of the business risk methodology and other measures of audit quality, such as auditor litigation, earnings management etc. Moreover, future research might examine the impact of business risk auditing on other types of audit decisions, such as client acceptance, planning of audit testing and audit fees.

CHAPTER 5

GENERAL DISCUSSION

This dissertation examined the auditor's consideration of strategic management plans in a going-concern decision context. In particular, we have focused on the following topics: (1) the impact of management initiatives to mitigate financial distress on the going-concern decision and (2) the impact of industry specialisation, audit methodology and management initiatives on going-concern reporting accuracy.

Chapter 1 introduced the research issues that are addressed in this dissertation and positioned these within the going-concern decision framework. In chapter 2, we investigated the association between the implementation of strategic and operating turnaround initiatives and the auditor's decision to issue a going-concern modified audit report. Chapter 3 probed deeper into the going-concern decision-making process by reporting the results of an experimental study examining the effect of client strategic information on the processing of subsequent going-concern information. Finally, chapter 4 studied the effect of various auditor traits such as industry specialisation and auditing methodology on going-concern reporting accuracy and investigated the comparative advantage of industry specialists and business risk auditors in evaluating their client's turnaround initiatives.

This final chapter provides a general discussion of the three previous chapters and is organized as follows. Section 5.1 summarizes the three empirical studies. Section 5.2 discusses the limitations and possible avenues for future research. We conclude in section 5.3 by providing some policy implications.

5.1 SUMMARY

In this dissertation we provide an insight into auditors' consideration of management turnaround initiatives in a going-concern decision context. Prior research that examined the determinants of the going-concern decision primarily focused on the

identification of financial indicators. In the second chapter of this dissertation, we contributed to this literature by empirically testing the predictive value of a comprehensive vector of management turnaround initiatives.

In order to investigate this issue, we used a unique dataset of management turnaround initiatives implemented by distressed US companies. Linking this manually collected dataset to companies' audit reports enabled us to gain an insight into the auditor's consideration of management initiatives in a distressed client context. Consistent with the strategic literature, we categorized management turnaround initiatives into operating initiatives (i.e. cost reduction, asset disposal, increased marketing and product upgrading), and strategic initiatives (i.e. product innovation, expansion and cooperative strategies). Given that the going-concern decision is an assessment of the likelihood of client survival *within the next twelve months*, we further distinguished between strategic growth initiatives that are likely to generate positive cash flows in the short run (i.e. cooperative agreements) versus long run (i.e. innovation and expansion strategies).

The results of this chapter show that operating turnaround initiatives such as cost reduction and marketing strategies are positively associated with the likelihood that a going-concern opinion is received. This finding suggests that these strategies may be perceived by auditors as inadequate or insufficient to induce recovery. A similar result is obtained for strategic initiatives that are likely to only generate positive cash flow effects in the long run. In particular, our evidence suggests that product innovation initiatives are not perceived as mitigating factors but rather as going-concern risk factors. In contrast, we find that strategic turnaround initiatives that are likely to generate positive cash flow effects in the short run (such as cooperative initiatives) are perceived as a mitigating going-concern factor, decreasing the likelihood that a going-concern opinion is received.

In the third chapter, we experimentally investigated the impact of operating initiatives and strategic initiatives with a short-term impact on the going-concern decision-making process. In particular, we investigated whether strategic performance directly affects the going-concern judgment or whether it has an indirect effect by changing the interpretative framework for subsequent financial going-concern information. Our investigation of the potential indirect effect of management turnaround initiatives on going-concern judgment is motivated by prior business risk audit research suggesting that the holistic perspective that auditors acquire when evaluating a client's strategic viability

substantially impacts the auditor's evaluation of subsequent audit evidence. In accordance with prior going-concern literature, we measured participants' attention to going-concern evidence items by collecting cues recalled.

In addition to testing the direct and indirect effect of management turnaround initiatives on auditors' going-concern decision, chapter 3 also focused on the differential effect of this type of information on going-concern decision-making for experienced and novice auditors. Based on prior audit research regarding experience effects, we predicted that operating and strategic turnaround initiatives have a greater impact on the going-concern decision for experienced auditors.

Consistent with the results from the previous study, the results of the experiment indicate that strategic management initiatives that are likely to generate short-term cash inflows have an overall positive impact on the auditor's going-concern judgment. Further analysis of the direct and indirect effect of management turnaround initiatives revealed a positive *direct* effect of strategic initiatives with a short-term impact on going-concern judgment for all participants and a negative *indirect* effect of both strategic and operating initiatives for the group of experienced auditors. With respect to the latter effect, the results showed that auditors, who were informed that the client attempted to restore profitability through the implementation of operating or strategic management initiatives, focused more on negative financial going-concern evidence and less on positive financial going-concern evidence. This effect might be explained by the fact that experienced auditors perceived the implementation of management turnaround initiatives as an "early warning signal" that the client might be in financial distress, which subsequently caused auditors to focus more on financial distress indicators.

In the fourth chapter of this dissertation, we investigate which auditor characteristics are likely to decrease the likelihood of audit reporting errors. In particular, we contributed to the literature on audit reporting errors by investigating the impact of industry expertise and the implementation of the business risk methodology on the likelihood of Type II reporting errors (i.e. issuing a clean opinion for a client that subsequently goes bankrupt). Moreover, we investigated whether these traits enable auditors to better judge the adequacy of their clients' operating and strategic turnaround initiatives.

We investigated these research issues by testing a series of logistic regression models. The results of these regression models suggest that the implementation of the business risk methodology increases the likelihood of Type II errors. Further analysis indicated that this might be attributed to the fact that business risk auditors are less likely to issue a going-concern opinion for a client that subsequently goes bankrupt if this client implements operating turnaround initiatives. Contrary to these results, we find that the likelihood of Type II errors is lower when a client resorting to an operating turnaround approach is audited by an industry specialist auditor. This suggests that an analysis of client strategy *per se* may not reduce the rate of Type II errors, unless the auditor has adequate industry experience to judge the adequacy or feasibility of client turnaround initiatives.

Overall, the findings of this dissertation indicate that management turnaround initiatives are likely to have a significant impact on going-concern decision-making. In particular, the results from chapter 2 show that operating initiatives and strategic initiatives which are likely to only generate positive cash flows in the long run significantly increase the likelihood of receiving a going-concern opinion, whereas strategic initiatives that are likely to generate cash inflows in the short run significantly decrease the likelihood of receiving a going-concern opinion. Furthermore, the experimental research in chapter 3 indicates that the negative impact of operating turnaround initiatives on auditors' going-concern judgment is likely to be due to the indirect effect of management turnaround initiatives on going-concern judgment, reflected in an increased recall of negative financial going-concern evidence and a decreased recall of positive financial going-concern evidence. In contrast, the positive effect of strategic information with a short-term impact is likely to be due to the positive direct effect of this type of information on going-concern judgment, which reflects auditors' perceived adequacy of this type of turnaround initiatives. The results from the fourth chapter however indicate that the auditor's consideration of management turnaround initiatives may not always contribute to audit quality. In particular, our findings suggest that the consideration of strategic and operating initiatives are only beneficial to auditor reporting accuracy if the auditor has sufficient industry experience to assess the adequacy of these initiatives.

5.2 LIMITATIONS AND SUGGESTIONS FOR FUTURE RESEARCH

The studies in this dissertation contribute to the auditing literature by exploring the role of strategic information in the going-concern decision process. This research, however, is subject to a number of limitations. Moreover, given that audit research on the value of client strategic information is scant, numerous research avenues remain to be explored.

A limitation that applies to all chapters relates to the size of the datasets used. In particular, the sample sizes in chapters 2 and 4 are kept rather small due to the manual collection of the strategic variables. In addition, only companies from manufacturing industries are included in these samples. Further research is needed to determine the generalizability of the findings to companies in other industries. It is reasonable to expect that auditors' perceptions of the adequacy of management turnaround initiatives might vary across industries. In chapter 3, the small sample size mainly results from the fact that we required half of the participants to be auditing managers or partners, a group which typically has a very busy schedule. A replication of the reported experimental study with a larger sample would however be worth the effort as it would significantly improve the power of the statistical tests.

Second, we used disclosure of strategic plans and information in the annual report and 10-K as our proxy of client strategic activity which implies that we do not take into account strategic plans that are disclosed directly to the auditor without being mentioned in the company's 10-K. However, we do not believe that this will have a substantial impact on the conducted research as the suitability of 10-K filings for non-financial information collection is supported by prior research (see, for example Boo and Simnett, 2002) and SEC registrants are required to disclose trends, demands, commitments, events and uncertainties presently known to management and likely to have material effects on the registrant's financial condition (Securities Act Release no. 6835).

Another limitation related to the data is the utilization of binary variables instead of more continuous measures of management turnaround initiatives in chapters 2 and 4. Future research could investigate whether alternate continuous variables that capture the monetary value of cost reduction or asset disposal initiatives provide additional explanatory power beyond the dichotomous variables. Potentially, the auditor's perception

of the adequacy of management turnaround initiatives is dependent upon the pervasiveness of these initiatives.

Furthermore, although recommended by SAS No. 59, we do not measure the feasibility or adequacy of the publicly disclosed strategic plans. It might be interesting though to link information with respect to a distressed companies' operating and strategic health to the implemented turnaround initiatives in order to assess their appropriateness or feasibility. The strategic literature provides support for this type of turnaround analysis by emphasizing the importance of turnaround initiatives being in line with the specific problems of the distressed company. Research with respect to the auditor's evaluation of turnaround initiatives may investigate the extent to which they perform a turnaround analysis and how it impacts their perception of the client's turnaround strategy. A similar line of reasoning can be used to support the inclusion of the conditions in the client's industry in the analysis. In particular, one can take into account the flexibility and growth opportunities in an industry to assess the chances of success of company strategic initiatives.

We also discuss a number of limitations and suggestions each applying to only one specific chapter in this dissertation. A limitation that applies to the third chapter is the use of auditing students as inexperienced auditors. Although this is not uncommon in experimental auditing research (e.g. Frederick and Libby, 1986; Schultz and Hooks, 1998; McCracken, 2003; Hoffman, Joe and Moser, 2003), including audit seniors would add to the external validity of the study.

A suggestion for future research following from chapter 3 relates to the investigation of the going-concern decision process. The study reported in this dissertation mainly focused on the processing of going-concern information. It might, however, be interesting to study the information acquisition process of going-concern information for experienced and inexperienced auditors. This type of research could be conducted by means of a going-concern information selection task, allowing the researcher to assess which types of strategic and other non-financial information items are of interest to the experienced and novice auditor in a going-concern decision context.

With respect to investigation of audit reporting errors in the fourth chapter, future research might consider assessing the association between Type I misclassifications (i.e. the issuance of a going-concern report for a company that subsequently remains viable)

and management turnaround initiatives. Because the costs of Type I reporting errors are less apparent than the costs of Type II reporting errors, the focus of legislators, users and researchers has almost exclusively been on Type II reporting errors. However, Type I reporting errors are also deserving of our attention because of their potential negative impact on client satisfaction and future client viability (Francis, 2004). With this in mind, an interesting avenue for future research would be to investigate the impact of strategic information on the likelihood of Type I reporting errors.

A limitation that also applies to the fourth chapter is the use of an audit firm dummy as a proxy for the audit methodology that was implemented by the auditor. Future research might refine this measure by assessing the degree to which the business risk approach is implemented by means of a survey. By granting each audit firm a rating based on a number of criteria that are indicative of the audit methodology used, a more informative proxy might be constructed. In addition, using this more refined measure, future research might study the effect of the business risk methodology on other indicators of audit quality, such as auditor litigation, earnings management etc. Another interesting topic for future research concerns the effect of audit methodology on other types of audit decisions, such as (1) client acceptance, (2) planning of audit testing and (3) audit fees.

5.3 POLICY IMPLICATIONS

This last section provides some policy implications for audit practitioners, audit clients and regulators. We start by outlining the implications for audit practitioners, which follow mainly from the findings in the fourth chapter. More specifically, results on the analysis of determinants of audit reporting errors show that that Type II errors are more likely to occur if a client implements an operating turnaround approach, *except* when this client is audited by a specialist auditor. It hence might be useful to include auditors in the audit team possessing industry expertise when evaluating a severely distressed client pursuing operating turnaround initiatives.

Second, with respect to the impact of audit methodology on reporting accuracy, the results of chapter four indicate that the likelihood of Type II errors is higher when a client resorting to an operating turnaround approach is audited by a business risk auditor. This suggests that an analysis of client strategic initiatives might not always be beneficial to

audit quality. Stated differently, it is not sufficient that the auditor considers operating and strategic initiatives to mitigate financial distress; he should also be adequately trained to judge the adequacy and feasibility of these initiatives. In particular the judgment of operating initiatives might require specialist knowledge.

Implications for audit clients mainly follow from the results reported in chapters 2 and 4. More specifically, the results from chapter 2 with respect to auditors' evaluation of management turnaround initiatives might assist clients in assessing the consequences of their turnaround strategy on their auditor's going-concern decision.

In addition, audit clients might find the findings in chapter 4 with respect to the association between certain auditor characteristics and the likelihood of reporting errors particularly useful. These results suggest that a client with severe financial difficulties might reduce the likelihood of a Type II error by hiring an industry specialist auditor, especially when this client resorts to operating management actions to mitigate financial distress.

Finally, we conclude by providing some policy implications for regulators. The results obtained in this dissertation provide an insight into the types of management initiatives that auditors consider in a going-concern decision context. The findings clearly indicate that auditors consider management initiatives beyond those suggested by SAS No. 59 and as such perform a rather thorough analysis of client initiatives to mitigate financial difficulties.

However, our results also suggest that the consideration of certain management turnaround initiatives might give rise to an increased likelihood of audit reporting errors. In particular management initiatives that are part of an operating turnaround approach may increase the likelihood of Type II errors. Therefore, regulators should be careful to emphasize not only the auditor's development of a thorough understanding of client objectives and strategies (ISA 315), but also the provision of adequate training to develop sufficient knowledge to evaluate these strategies.

APPENDICES

APPENDIX 2.1: STRATEGIC SCORECARD

Operating Turnaround Initiatives	
Asset Disposal Strategy	
Disposal of assets	1 if the company reports the sale of assets during the year to increase cash flow
Cost Reduction Strategy	
Reduce or delay expenditures	1 if the company significantly reduced spending or reports significant employee layoffs during the year to increase cash flow
Commercial Strategy	
Increase marketing efforts	1 if the company reports increased advertising, increased direct sales efforts, or changes in marketing programs during the year
Product & Process Improvement Strategy	
Technological and/or product upgrading	1 if the company reports improvements to existing products and/or production processes during the year
Strategic Turnaround Initiatives	
Cooperation strategy	
Long-term contractual agreements	1 if the company engages into one of the following activities during the year under audit: <ul style="list-style-type: none"> - closing long-term contracts with buyers or suppliers during the year - entering into new joint ventures and strategic alliances - entering into new licensing contracts - entering into contracts for components, subassemblies and products - entering into new contracts with distributors
Product Innovation Strategy	
Introduction of new products	1 if the company reports the introduction of new products during the year under audit
Expansion Strategy	
Mergers and acquisitions	1 if the company reports horizontal mergers and acquisitions during the year under audit

APPENDIX 2.2: CORRELATION MATRIX

	REPORT	CR	LTDTA	LNTA	CFOTL	INDCR	CHANGE	CR	DEFAULT	STOCK	BORROW	O-COSTRED	O-DISPOSE
REPORT	1.00												
CR	-0.27	1.00											
LTDTA	0.10	-0.16	1.00										
LNTA	0.00	-0.25	0.17	1.00									
CFOTL	0.01	-0.77	0.19	0.39	1.00								
INDCR	-0.44	0.50	-0.16	-0.04	-0.37	1.00							
CHANGE	-0.17	0.61	0.00	-0.06	-0.45	0.12	1.00						
DEFAULT	0.34	-0.25	0.15	0.27	0.26	-0.18	-0.01	1.00					
STOCK	0.00	-0.07	-0.06	-0.09	0.05	-0.08	-0.06	-0.06	1.00				
BORROW	-0.46	0.03	-0.02	0.24	0.16	0.31	-0.03	-0.17	-0.05	1.00			
O-COSTRED	0.20	-0.07	0.14	0.25	0.06	-0.04	0.06	0.31	-0.02	-0.10	1.00		
O-DISPOSE	0.10	-0.22	0.08	0.26	0.21	-0.12	0.00	0.34	0.15	-0.03	0.12	1.00	
O-UPGRAD	0.02	-0.08	0.14	0.01	0.10	-0.01	0.03	0.08	0.14	-0.02	0.10	-0.01	1.00
O-COMMERCIAL	0.04	0.16	0.18	-0.23	-0.21	0.16	0.10	-0.07	0.14	-0.01	-0.04	-0.19	-0.19
S-COOP	-0.13	0.06	-0.01	-0.23	-0.11	0.04	0.10	-0.07	0.20	-0.06	0.03	-0.19	-0.19
S-EXPANSION	0.12	-0.08	-0.02	0.00	0.06	-0.02	-0.01	0.20	-0.01	-0.15	-0.01	-0.02	-0.02
S-PRODUCT	0.09	-0.03	0.06	-0.04	0.01	0.10	-0.01	0.07	-0.04	-0.10	0.03	-0.10	-0.10
OPERATING	0.19	-0.11	0.27	0.16	0.08	-0.01	0.09	0.34	0.20	-0.09	0.63	0.48	0.48
STRAT_ST	-0.13	0.06	-0.01	-0.23	-0.11	0.04	0.10	-0.07	0.20	-0.06	0.03	-0.19	-0.19
STRAT_LT	0.15	-0.08	0.04	-0.03	0.04	0.07	-0.02	0.18	-0.03	-0.17	0.02	-0.10	-0.10

	O-UPGRAD	O-COMMERCIAL	S-COOP	S-EXPANSION	S-PRODUCT	OPERATING	STRATST	STRATLT
REPORT								
CR								
LTDTA								
LNTA								
CFOTL								
INDCR								
CHANGECR								
DEFAULT								
STOCK								
BORROW								
O-COSTRED								
O-DISPOSE								
O-UPGRAD	1.00							
O-COMMERCIAL	0.04	1.00						
S-COOP	0.19	0.21	1.00					
S-EXPANSION	0.03	-0.03	0.09	1.00				
S-PRODUCT	0.02	0.22	0.23	-0.03	1.00			
OPERATING	0.51	0.39	0.11	-0.01	0.08	1.00		
STRATST	0.19	0.21	1.00	0.09	0.23	0.11	1.00	
STRATLT	0.03	0.16	0.24	0.59	0.79	0.06	0.24	1.00

APPENDIX 3.1: EXCERPTS FROM EXPERIMENTAL INSTRUMENT: THE SECTION “CURRENT STRATEGIC INITIATIVES AND REALISATIONS” IN THE STRATEGIC CONDITION.

Current strategic initiatives and realisations

The Company recognizes that more immediate and measurable objectives are required in order to effectively carry out its long-term strategies. As a result, the Company's Board of Directors and senior management meet annually to review the strategic imperatives. These strategic imperatives, which generally span a three to five year time frame, target specific issues in response to changes in consumer needs and the competitive retail landscape.

Because 2005 was a quite challenging year for Indigo, the company engaged in 2005 in the implementation of several cooperative agreements in order to increase cash flow and to restore earnings and sales growth:

Establishing strategic alliances

A noticeable trend in the industry has been the movement to one-stop shopping, meaning that supermarkets expand the number of nonfood items that are offered (e.g., pharmacy, music, photo-finishing, dry cleaning, flowers, videos, books, printing, postal services, and travel services).

In order to enhance Indigo's one-stop shopping experience and expand its services, the company entered into strategic alliances in 2005 with a major restaurant chain, a photo-finishing company and a bakery.

Moreover, an alliance with a well known packaged food company is close to being signed. This alliance will expand the product line of ready-made meals with new high-quality, pre-prepared products.

In 2005, Indigo banking services were also introduced in some stores through PC Financial in collaboration with the Canadian Imperial Bank of Commerce, one of the largest banks in Canada. Based on detailed market studies conducted by a professional marketing firm, these actions are expected to increase revenues with 30 million in 2006.

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APPENDIX 3.2: EXCERPTS FROM EXPERIMENTAL INSTRUMENT: THE SECTION “CURRENT STRATEGIC INITIATIVES AND REALISATIONS” IN THE OPERATING CONDITION.

Current strategic initiatives and realisations

The Company recognizes that more immediate and measurable objectives are required in order to effectively carry out its long-term strategies. As a result, the Company's Board of Directors and senior management meet annually to review the strategic imperatives. These strategic imperatives, which generally span a three to five year time frame, target specific issues in response to changes in consumer needs and the competitive retail landscape.

Because 2005 was a quite challenging year for Indigo, the company engaged in 2005 in the implementation of a cost-cutting plan to increase cash flow and to restore earnings and sales growth:

Starting an extensive cost-cutting program

In 2005, Indigo analyzed its expenses, resources and liquidity and took steps to mitigate the effects of this slowdown by substantially reducing quarterly operating expenses.

More specifically, the company has started a multi-year action plan to reduce logistics and distribution costs per case substantially through a combination of leveraging volume growth and operation process changes. A key part of this initiative is to address supply chain costs by shipping from Indigo distribution centers to stores instead of directly from vendors to stores, which is expected to result in a cost saving of \$19 million in 2006. In addition, Indigo further expects to decrease expenses by an additional \$11 million by reducing use of third party service providers, reducing use of professional consultants, lowering salaried labor costs and decrease spending by the administrative department.

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APPENDIX 3.3: MEAN (STANDARD DEVIATION) OF EXPERIENCED AUDITORS' COMPLETION TIME (IN SECONDS)

Management Initiatives	n	Read General Company Information	Read Financial Ratios	Read Strategic Information	Read Financial Information	Going-Concern assessment	Strategic Viability Assessment
OPERATING	15	86.00 (72.89)	65.27 (59.38)	72.73 (51.39)	231.20 (168.04)	62.60 (39.60)	34.80 (34.29)
STRATEGIC	17	90.94 (98.89)	58.12 (85.38)	45.82 (61.18)	213.76 (211.24)	90.47 (108.31)	119.53 (326.17)
NO INFORMATION	18	154..17 (184.77)	54.50 (52.35)	0.00 (0.00)	186.94 (121.67)	125.44 (158.95)	55.50 (105.10)
TOTAL	50	122.22 (132.55)	58.96 (66.02)	37.40 (53.83)	209.34 (167.67)	94.70 (117.10)	71.06 (28.36)

APPENDIX 3.4 MEAN (STANDARD DEVIATION) OF INEXPERIENCED AUDITORS' COMPLETION TIME (IN SECONDS)

Management Initiatives	n	Read General Company Information	Read Financial Ratio Information	Read Strategic Information	Read Financial Information	Going-Concern assessment	Strategic Viability Assessment
OPERATING	13	173.62 (48.18)	119.23 (84.90)	104.38 (50.88)	339.62 (90.69)	64.69 (21.31)	25.38 (7.94)
STRATEGIC	17	180.59 (36.91)	98.82 (45.76)	109.18 (25.77)	379.35 (82.82)	54.76 (15.67)	26.65 (11.24)
NO INFORMATION	17	166.76 (57.55)	102.24 (63.73)	0.00 (0.00)	362.00 (144.50)	68.35 (28.47)	32.12 (9.99)
TOTAL	47	173.66 (47.61)	105.70 (63.99)	68.36 (60.13)	362.09 (109.76)	62.43 (22.85)	28.28 (10.20)

APPENDIX 4.1 : CORRELATION MATRIX

	ERROR II	LNTA	ZMIJEWSKI	DEFAULT	SQBANKRUPTLAG	SPECIALIST
ERROR II	1.00					
LNSALES	0.27	1.00				
ZMIJEWSKI	-0.36	-0.21	1.00			
DEFAULT	-0.36	0.00	-0.03	1.00		
SQBANKRUPTLAG	0.42	-0.02	-0.18	-0.16	1.00	
SPECIALIST	0.09	0.23	-0.08	-0.01	-0.01	1.00
BRA	0.02	0.00	-0.11	0.21	-0.07	-0.20
RAISEMONEY	0.12	-0.08	0.08	-0.16	-0.07	-0.14
OPERATING	0.02	-0.03	-0.03	-0.19	0.12	0.12
STRATEGIC	0.09	-0.07	0.02	-0.25	0.06	0.02
STRATST	0.12	-0.08	0.08	-0.16	-0.07	-0.14
STRATLT	0.02	-0.03	-0.03	-0.19	0.12	0.12

	BRA	RAISEMONEY	OPERATING	STRATEGIC	STRATST	STRATLT
ERROR II						
LNSALES						
ZMIJEWSKI						
DEFAULT						
SQBANKRUPTLAG						
SPECIALIST						
BRA	1.00					
RAISEMONEY	0.13	1.00				
OPERATING	0.02	-0.06	1.00			
STRATEGIC	0.09	0.18	-0.08	1.00		
STRATST	0.13	0.17	-0.07	0.58	1.00	
STRATLT	0.02	0.11	-0.05	0.83	0.02	1.00

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